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Official Publication of the State Medical Society of Wisconsin

Volume 98, No. 1

WMJ

January/February 1999

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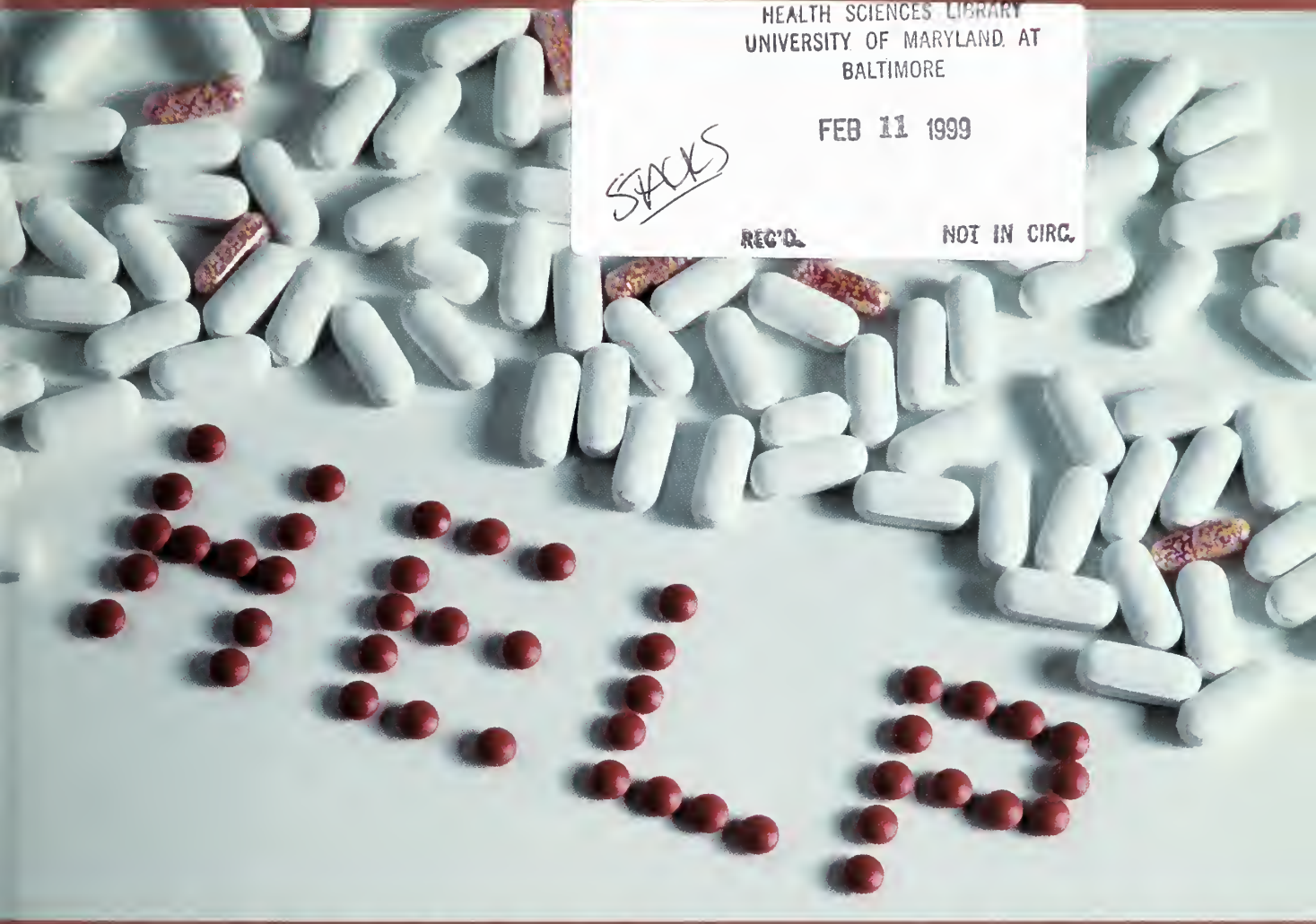

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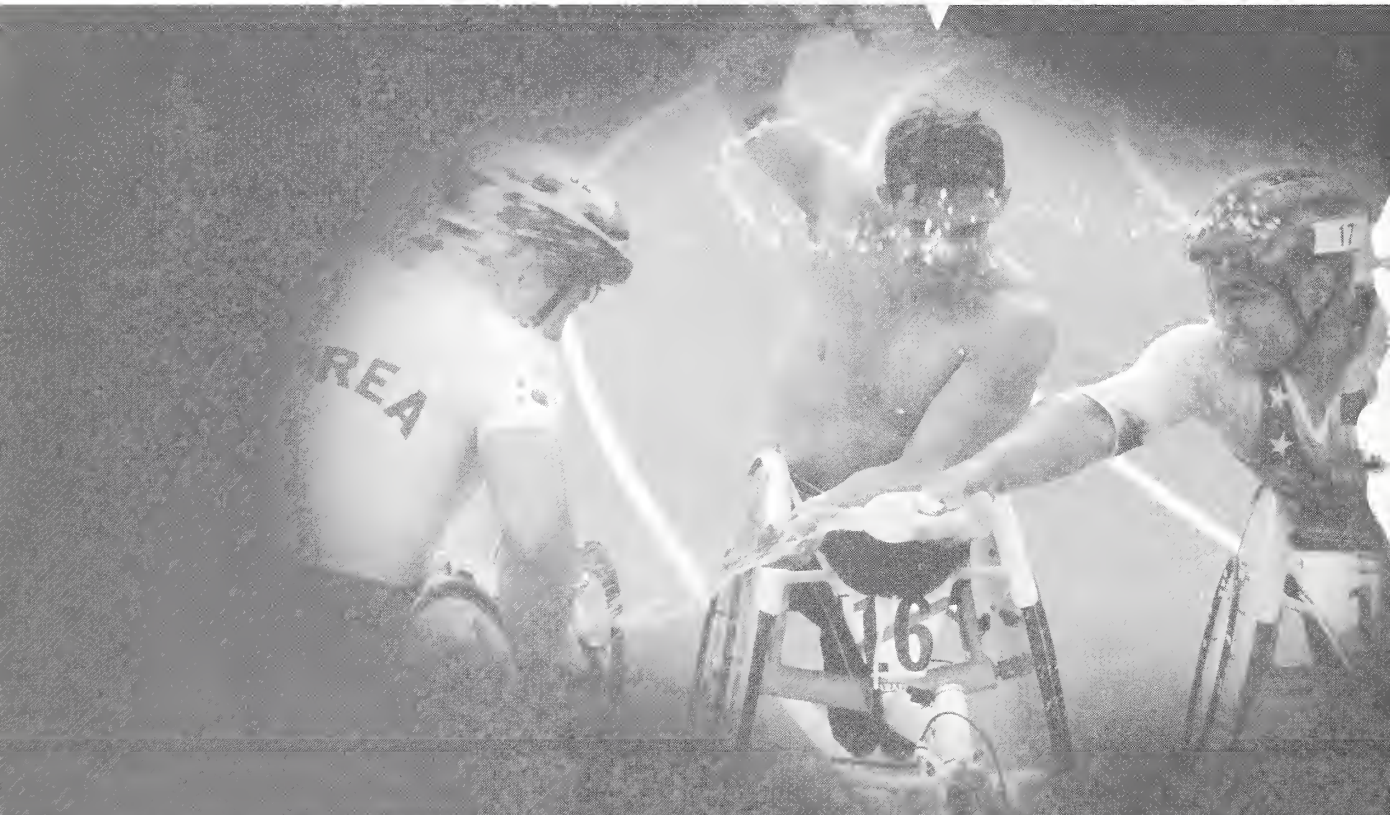
DETERMINATION HAS A WAY OF DISGUISING ITSELF AS A MIRACLE.



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Addiction Additions

by Thomas C. Meyer, MD, WMJ *Medical Editor*

More than 450,000 people in the United States die annually from the effects of smoking nicotine cigarettes. And alcohol is responsible for about 100,000 premature U.S. deaths each year, according to Marc Kennedy's report *Tobacco & Alcohol: Still Masters of Addiction* (p. 30).

But where are we in the understanding and management of the common addictions?

This issue of *WMJ* provides some interesting and some rather startling information related to addictive diseases. In *The Disease of Addiction* (p. 19) Lance Longo, MD, reminds us of the high incidence of addiction and the fact that there may be significant numbers of dependent patients in every practice. Doctor Longo warns that recent advances in the understanding of these diseases should make them part of individual Continuing Medical Education programs so that there is improved understanding of the neurophysiological and neurochemical concepts which are "medicalizing" the management of addictions along with the psychosocial aspects underlying the 12-step program.

Doctor Longo's thoughtful article on Risk Management (p. 23) in the prescription of controlled substances provides several gems – definitions of use, abuse, dependence and addiction; characteristics of patients seeking drugs; how to "turn the tables" on the demanding patient, as well preventive measures physicians should take when prescribing controlled substances.

Beginning on page 42, Dean Stueland, MD, explores gender and the characteristics of patients admitted to the inpatient Alcohol and Drug Treatment Program in Marshfield and points out differences that need to be addressed in the managements of addicted/dependent men and women. Robert S. Steele, MD, and his colleagues point out (p. 54) that the general belief that there is more alcohol dependence and abuse in Michigan's Upper Peninsula than lower Michigan could not be supported—results which may be useful in discussions about alcohol abuse in northern versus southern Wisconsin. *An Ecological Study of Cirrhosis Mortality and Alcohol Consumption in the U.S.* (p. 48) comments on the apparent dissonance between Wisconsin being in the top five states in per capita alcohol consumption while ranking 43rd among states with deaths ascribed to cirrhosis.

Nicotine addiction is the focus of the two papers by Eric Aakko and colleagues. They explore the legislation related to smoke-free workplaces in Wisconsin municipal and county government buildings and the smoking cessation services available to state employees by their health insurance plans.

Finally, we are going to try and publish one case report in each *WMJ*. This time Cheryl A. Jeanpierre, DO, reminds us of impaired thermoregulation as one of the hazards faced by quadriplegics and its consequences in this cold climate.

If it seems that there is a lot of information to digest in this *WMJ*, there is. Budget cuts have forced us to reduce to six the number of issues we will publish this year, but we plan to bulk up the scientific nature of the Journal. Based on input from the reader survey we conducted last fall, we will be publishing more peer reviewed papers in each issue and eliminating some of the less well-regarded components. In addition, we will still publish an annual report, and we are examining ways to publish a few "special focus" issues as well. We hope you like the change and look forward to your input.

WMJ

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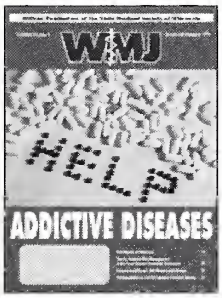

COVER THEME
ADDICTIVE DISEASES

Hundreds of thousands of people in the United States die each year from the effects of nicotine and alcohol, and it's a problem that hits close to home. Wisconsin is among the leaders of binge drinking on college campuses, and despite the fact most people know smoking is deadly, they still light up every day.

In this issue of WMJ, *we examine what steps physicians can take to help their patients wage the battle against addictive diseases.*

Cover design by Scott Breuchel, TypeTronics

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President's Page

Addressing Addictive Diseases

by John D. Riesch, MD

A little over four years ago Madison, Wisconsin found itself in the national headlines. Not because of a Badger victory, or another high profile "Best of" ranking, but because of a woman found frozen to death in a snowbank as a result of her alcoholism. The woman, Terry McGovern, was the daughter of Senator George McGovern. How could this happen to the daughter of one of America's most-respected and well-educated public officials? It was a question many in Wisconsin were asking — and many in the nation as well.

The truth is addiction has no boundaries. We're all familiar with former First Lady Betty Ford's struggle. We've witnessed the most famous in Hollywood destroy themselves. Walk down the streets of major metropolitan areas and you're bound to see the evidence of drug and alcohol abuse. Most of us have family or friends who have experienced the trials and tribulations of addiction. But what is society doing to control this epidemic? Some may say, not enough. However, I do believe we have outstanding resources at our disposal.

In 1996, six universities, including the University of Wisconsin-Madison, became partners with the American Medical Association and the Robert Wood Johnson Foundation, which selected them to receive grants in a seven-year, $8.6 million (approximately $770,000 per school), two-stage program. Over two years later, the partnership has supported several positive programs that are designed to reduce high-risk drinking among college students.

"A Coalition for Campus and Community Change," the theme of the University of Wisconsin-Madison grant, involves changing the norms around drinking at the university. From the beginning, it was determined that active student leadership and involvement was vital to the program's success. Recent activities of the program include distributing student surveys indicating interests and hobbies, recording them in a database and matching the participants with the 645 student organizations on campus; a major ad campaign with the theme "There are 645 organizations. Join one." has appeared in student newspapers and posters around campus; meetings with the Tavern League; programs to increase the hours of student centers and their activities; and more.

On a national level, organized medicine is also working to address addictive diseases issues. This year the American Medical Association is co-sponsoring its first National Alcohol Screening Day scheduled for April 8, 1999, during National Alcohol Awareness Month. The National Alcohol Screening Day is designed to call attention to alcohol problems and to indicate that, like other illnesses, alcohol use disorders are identifiable and treatable. The hope is that such a day will help encourage patients, in a positive manner, to seek medical assistance with alcohol-related problems. The free voluntary screenings will take place at community health care organizations such as hospitals, treatment facilities and mental health centers. Screening sites will be supplied with the materials needed to conduct the screening program including screening forms, educational brochures, posters and a video.

I'm encouraged that our state and the AMA are making positive inroads in the fight against addiction. I believe with our support of such programs that Wisconsin can make the news headlines for other, more positive, reasons relating to alcohol. Working together with our communities, physicians can advance the health of the people of Wisconsin.

For more information on the Robert Wood Foundation grant, contact Rob Adsit, Project Coordinator at (608) 265-5231 or via e-mail at rtadsit@facstaff.wisc.edu. To receive more information on National Alcohol Screening Day, contact Anne Keliher, at the non-profit National Mental Illness Screening Project, Inc., at (781) 239-0071.

Doctor Purtell Will Be Missed

I was greatly saddened to learn of the death of Robert Purtell, Jr., MD. Doctor Purtell was a leader not only among Milwaukee County physicians but a key opinion leader for physicians in Wisconsin.

During my years at the State Medical Society, Dr. Purtell, the late Jerome Fons, MD, and I met frequently for lunch to discuss how to shape the health care delivery system in Milwaukee County so as to strengthen the physician's role in patient care. During those lunches, I came to appreciate Dr. Purtell's keen mind and understanding of what is truly important in health care, the physician-patient relationship. Doctor Purtell was a man who thought strategically, even as he sought to direct the changes occurring in the health care system.

He was also ever quick to remind you of his Irish heritage. His Irish ties on St. Pat's Day were but one way he proudly displayed his heritage. The humor he brought to his many roles, President of the Medical Society of Milwaukee County, Chair of the Wisconsin Physicians Alliance and a 10-year member of the SMS Executive Committee, was always appreciated by those who sat through those meetings.

Bob Purtell, Jr., MD, will live on . . . not just through his accomplishments for organized medicine. The lives that he touched and healed, the babies he delivered, the care he provided to those who could not pay, talented children, and a wonderful wife are all part of a substantial legacy.

Bob Purtell celebrated being a physician and exemplified the role physicians should seek to play in society. He will be sorely missed.

Thomas L. Adams, Denver, CO

Seafood Recommendation in Knobeloch Paper 'Inappropriate'

My attention was recently directed to a paper published in the October 1998 issue of the *Wisconsin Medical Journal* by Knobeloch, et. al. highlighting positive urine arsenic tests caused by seafood ingestion. The *Milwaukee Journal Sentinel* reported on these findings in the November 6, 1998, paper.

The medical community has known for many years that seafoods, or foods that have seafood as their protein origin, contain nontoxic forms of arsenic. These nontoxic arsenic species are excreted in urine following human consumption of such foods. This finding can confound the evaluation of suspected arsenic intoxication. The confounding factor has been addressed by many clinical laboratories with introduction of follow-up procedures that discriminate between toxic and nontoxic forms of arsenic. Medical centers providing state-of-the-art technology, such as the Marshfield Clinic and West Allis Hospital in Wisconsin, offer such follow-up procedures.

The recommendation by Knobeloch, et. al. is to follow up positive urine arsenic results by requesting the test subject abstain from seafood, with retest in three days. This approach is inappropriate because many foods contain these nontoxic forms of arsenic--chicken raised in Georgia on shrimp-based protein can cause increased arsenic excretion. The laboratory procedure for discriminating between toxic and nontoxic forms of arsenic is straightforward and inexpensive. Competent laboratories can perform the procedure to distinguish the various species of arsenic. The additional cost of state-of-the-art testing is minimal compared to the increased cost associated with follow up, and the alarm caused by false-positive results based on obsolete technology. Milwaukee's medical community is particularly well-known for excellence in the field of toxicology. Public health officials should take advantage of this local expertise before alarming the public unnecessarily.

Thomas P. Moyer, PhD,
Mayo Clinic

• • •

Editor's Note: Doctor Moyer provided the Mayo Clinic Proc. 1993;68:1210-1211.

Mehr's *WMJ* Criticism Justified

Michael Mehr's criticism in last month's *WMJ* about the naked lady on the cover is justified. Perhaps he did not realize that the cover picture of the naked lady could just as well have represented the SMS, except we need to add a blindfold.

As a medical society, we need to look towards our own professional, moral and ethical standards, rather than embellishing our own image and using the *WMJ* to do it. The *WMJ* today seems more like an advertisement of our varied achievements than a Society's mouthpiece.

V. Cameron, MD, Athens

Todd Mahr, MD

Physician Citizen of the Year

La Crosse Physician Fights Smoking With Professional Credibility

by Steve Busalacchi, Director, News & Information

"It's key for physicians to be involved," says **Todd Mahr, MD,** of La Crosse. Doctor Mahr lives by those words, having taken a prominent role in local efforts to fight tobacco use.

"There are a number of studies showing that patients want their physicians to talk to them about smoking, want them to advise them on smoking cessation."

Doctor Mahr has been doing that and more. He hasn't just talked to his patients, but to the public through the news media, to youth groups and to adults at public meetings.

For his many efforts, Dr. Mahr received the 1998 Physician Citizen of the Year Award from the State Medical Society (SMS) of Wisconsin.

Based on nominations received from the public, the SMS Commission on Public Information selects up to eight Physician Citizens of the Year from various medical society districts in the state. The award honors its recipients for the uncompensated civic, cultural, economic and charitable services they have provided to their local or state communities.

During Dr. Mahr's award presentation in La Crosse in November, Scott Beede, MD, said, "It is completely appropriate to honor Dr. Mahr, especially this week, as it is the first day of the American Cancer Society's Great American Smokeout. And anybody who knows Dr. Mahr knows how hard he has worked to prevent smoking."

Perhaps nobody knows this better than Paula Silha, Certified Health Education Specialist with the La Crosse Area Health Initiative, a tobacco prevention group.

"(Doctor Mahr) is just the kind of person who is willing to go above and beyond the call of duty. When I read the nomination form, he just popped into my head because he gives so much of himself in so many things he's involved with," she said.

Doctor Mahr served two terms as Chair of the La Crosse Area Health Initiative, represents La Crosse on the Tobacco Free Wisconsin Coalition Board and is a prominent media spokesperson on tobacco issues. Besides that, he's Secretary/Treasurer of the Wisconsin Allergy Society and active in the American Lung Association of Wisconsin. So why the focus on tobacco?

"My interest stems from a number of aspects," Dr. Mahr explains. "The first being that I'm a pediatric allergist who sees a lot of kids with asthma and other respiratory problems, and the effect second-hand smoke has on them."

The issue is a personal one too, as he's the parent of a child with asthma and knows how difficult that can be without exacerbating the problem with tobacco smoke. Doctor Mahr also noted that he treats adult smokers and tries to convince them to quit.

Particular projects he's been involved with include a smoking cessation contest, for which he helped recruit and organize sponsors; a billboard contest, for which he wrote funding proposals; and a peer education program, for which he helped train young people how to teach other kids about the dangers of smoking. His most recent effort involves promoting smoke-free dining.

"Sometimes the people that I work with through the Health Initiative were just amazed, 'Gosh, he's willing to do that? That's neat.' It's not just that he's willing to be the spokesperson, he's been willing to be in there and do some of the little things to help projects along, and that has been very effective," Silha said.

Silha also emphasizes how important it is to have physicians help out on these health advocacy efforts. "Having a physician lends credibility to why a respiratory therapist, and the nurses and other health care professionals consider this as a serious issue." Still, Silha says Dr. Mahr is effective not just because of his expertise and passion, but because he has a great sense of humor.

"We'll be having a serious meeting about something and he'll make some quip that takes the stress out of this volatile and political topic—tobacco prevention. He tries to make it fun, as well. That goes a long way, too."

Who's In The News

Two physicians were recently honored by the National Society of Fund-Raising Executives at their NSFRE Philanthropy Day Awards luncheon. **Joseph B. Durst, MD**, a retired obstetrician from Franciscan Skemp, and vice president of the Franciscan Skemp Foundation, was named "Outstanding Professional Fund-Raiser. **Adolf L. Gundersen, MD**, of La Crosse, was honored for his volunteer work, being a philanthropic supporter of many causes and organizations, and leading development efforts as past chairman of the Gundersen Medical Foundation.

Charles H. Engel, MD, of West Salem, was named Physician of the Year by the Wisconsin Health Care organization. This award recognizes a Wisconsin physician for outstanding care and services provided to the residents of a member facility and the responsiveness to the needs of residents, families and staff of the facility. Doctor Engel has served as an attending physician to Mulder Health Care's residents for over 30 years, the last five as their medical director.

The "Director's Award" was presented to four individuals who exemplify one of Marshfield Clinic's four mission objectives: customer focus, people orientation, systems integration, and financial stability. This year's recipients were: Customer Focus – Marshfield Center rheumatologist, **Jerry W. Goldberg, MD**; People Orientation – Merrill Center family practice physician **Donald L. Evans, MD**; Systems Integration – Marshfield Center pathologist **Robert A. Carlson, MD**; and Financial Stability – Marshfield Center dermatologist **John W. Melski, MD**.

Orin A. Hermundstad, MD, of Stoughton, has been named a Melvin Jones Fellow by Lions Clubs International Foundation in recognition of his commitment to serving the world community. The fellowship is the foundation's highest honor. Since his retirement from his opthalmological practice, he has made several trips to the Philippines where he performed surgery to restore the sight of people in need.

Otolaryngologist **James J. Holt, MD**, has been awarded the Marshfield Clinic's "Mission Award." He has been actively involved in medical education and research, and involved in his professional society at a national level.

Ihor A. Galarnyk, MD, of Plain, received the Humanitarian Award from the Sauk Prairie Memorial Hospital Foundation for his long-time commitment to his patients and the community.

Henry M. Katz, MD, has received the St. Norbert's College Distinguished Achievement Award in natural sciences. He has made many outstanding contributions to the Manitowoc community, served as past president of the Holy Family Memorial Medical Center medical staff and the Manitowoc County Medical Society, and as past chief of the Department of Medicine at Memorial Hospital. Doctor Katz also received a community service award from the American Academy of Dermatology for his free skin cancer screening program.

The Marshfield Clinic "President's Award" has been awarded to family practice physician **Richard A. Leer, MD,** for his extraordinary contributions to the Clinic. He has provided support for growth of the clinic's research endeavors, construction of the Melvin R. Laird Center, was instrumental in developing the Clinic's business plan and in growth of the Clinic system.

Oncologist **James D. McGovern, MD,** of Green Bay was given the 1998 Guardian Angel Award of Unity Hospice for his 16 years of work with both the Green Bay Hospice and its predecessor, Bellin Hospital Hospice.

Jeffrey A. Niezgoda, MD, medical director of the Center for Comprehensive Wound Care and Hyperbaric Oxygen Therapy at St. Luke's Medical Center in Milwaukee, has been awarded the American Medical Association's Young Physicians Section Community Service Award for 1998. He received the award for his work as founder and president of the Association for Bladder Exstrophy Children.

Orthopedic surgeon **Eugene J. Nordby, MD,** of Madison, was honored by the North American Spine Society October 30 in San Francisco, CA at their annual meeting by the naming of an annual award, "The Lyman Smith, MD, and Eugene J. Nordby, MD, Award for Minimally Invasive Spine Surgery." The late Dr. Lyman Smith of Elgin, IL and Dr. Nordby worked together for 30 years on the research and clinical use of chymopapain in treating lumbar herniated intervertebral discs.

Welcome New Members

The individuals listed below were recently elected to SMS membership by their County Medical Societies. We are pleased to welcome them to the SMS.

Barron-Washburn-Burnett
Stephen T. Holthaus, MD
Todd R. Smith, MD

Dane
Thomas P. Broderick, MD
Deborah Buchman (S)
Christopher R. Croasdale, MD
Amy E. Daley, MD
Michael W. Greene (S)
Daniel J. Kaiser (S)
Walter Leo Longo, MD
Gavin T. Pittman (S)
Ravi Dama Rao, MD
Richard G. Rilling, MD
Daniel Schulteis (S)
Thor Daniel Stein (S)

Dodge
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Catherine C. McKesson, MD
Rhonda S. Miller, MD

Eau Claire-Dunn-Pepin
Roland Ramon More, MD

Grant
Mary Jo Oyen, MD

Kenosha
Vanessa Germaine King, MD

La Crosse
Bruce D. Misare, MD
Valerie D. Stephens, MD

Langlade
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Daniel R. Hellman, MD
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Shaila Singh, MD
Joseph M. Zompa, MD

Wood
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David L. Greenberg, MD
Evan K. Sandok, MD

(S) designates medical student membership

AMA Awards

The SMS member physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations.

Richard D. Bradley, MD
Marc R. Caine, MD
Robert W. Graebner, MD
Stephen D. Hathway, MD
Kay A. Heggestad, MD
Thomas C. Huffer, MD
Timothy R. Kim, MD
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Jeffry J. Young, DO

In Remembrance

Benish, George A., MD, 77, a general practitioner from Madison, passed away on December 4, 1998. He earned his medical degree from the University of Wisconsin Medical School in 1946. After finishing an internship in St. Louis, he spent two years in the U.S. Navy, first as a Medical Ward Officer at United States Naval Hospital, Long Beach, CA, and then as a Medical Officer on Terminal Island, San Pedro, CA. After the service, he completed his residency at Marshfield Clinic. In 1951 he joined the Tormey Clinic in Madison and practiced there for 39 years. He was also involved in Industrial Medicine. Doctor Benish was on the medical staff of St. Mary's Hospital and Madison General Hospital. He was a member of the American Academy of General Practitioners, the State Medical Society of Wisconsin, the Dane County Medical Society, where he served on its Board of Censors, medical consultant to the Wisconsin Power and Light Company, Madison Gas & Electric Company and the Wisconsin Telephone Company.

Doctor Benish is survived by his wife, Caryl; five children, Robert (Carol), of Hudson; Susan (William) Santner, of Madison; David (Judy), of Westport; George (Delores), of Oxford; and Thomas (Lisa) , of Friesland; three grandchildren, six step-grandchildren, and four great step-grandchildren.

Holmes, Guy W., MD, 69, of Schofield, passed away on November 26, 1998. He earned his medical degree from the University of Wisconsin and completed his internship at Milwaukee County Hospital and a residency at the VA Hospital in Wood, WI. He served in the U.S. Army during the Korean War. Prior to his retirement in 1997 he was affiliated with Associates in Pathology.

Doctor Holmes is survived by his children, Guy Jr. (Karen), of De Pere; John (Lisa), of Shocan, NY; Peter (Tamara), of Schofield; Ann Chishti, of Mobile, AL; and six grandchildren.

Kozina, Thomas J., MD, 68, of Franklin, passed away on December 5, 1998. He earned his medical degree from Marquette University Medical School in 1957 and completed his internship and residency in obstetrics and gynecology at St. Mary's Hospital in Milwaukee. Doctor Kozina was the director of Resident Education and Chief of Obstetrics at St. Francis Hospital, associate professor at the Medical College of Wisconsin, and past president of the American Cancer Society Southwest Division.

Doctor Kozina is survived by his wife, Donna; his daughter, Joan (Tim) Woodard, of Janesville; and grandson Tommy.

Purtell, Jr., Robert F., MD, 63, of Brookfield, passed away on December 30, 1998. He earned his medical degree from Marquette University Medical School, completed his internship at Misericordia Hospital, Milwaukee. After completing his residency he joined his father's medical practice, Robert F. Purtell, Sr., MD, in Milwaukee. Doctor Purtell was a co-founder and board member of the Greater Milwaukee Free Clinic, providing health care for the working uninsured.

He served as President of the Wisconsin Academy of Family Practice and the Medical Society of Milwaukee County. He was a delegate to the American Academy of Family Practice and the American Medical Association and performed extensive committee work for both organizations. He served on the SMS Board of Directors for nine years, and was a member of the SMS Physicians Alliance Commission for 12 years.

Doctor Purtell is survived by his wife, Mary; his children, Lucille Renaud; Ellen Purtell; Molly (James) Bergquist; Robert, III; James (Tracy); and John (fiancee Jessica Arnes); and grandchild, Brenna Bergquist.

Schacht, Sr., Edmund W., MD, 102, of Lancaster, passed away on December 4, 1998. After serving in the US Navy during World War I, he earned his medical degree from Johns Hopkins Medical School in 1926, and served his internship and residency in surgery at the Ford Hospital in Detroit, MI. Following his residency, he moved to Racine in 1933 and continued his surgical practice until his retirement in 1971. He served as chief of surgical staff at both St. Luke's Hospital and St. Mary's Hospital in Racine. Doctor Schacht was a founding member of the Wisconsin Surgical Society, member of the American College of Surgeons, the International College of Surgeons, Racine County Medical Society, the Henry Ford Hospital and the Johns Hopkins Medical and Surgical Associations, and a member of the 1976 SMS 50 Year Club.

Doctor Schacht is survived by his son, Dr. Lee E., of Minneapolis, MN; three grand-

continued on next page

children, Edmund (Robin), of Lancaster, Kurt (Cheryl), of Madison, Nancy (Mike) Leibfried, of Lancaster; and six great-grandchildren.

Zupanc, Edward, MD, 75, of Monroe, passed away on November 24, 1998. He served in the US Navy during the Korean War from 1943 to 1945 and again as a Lieutenant in the US Naval Medical Corps from 1952 to 1953. He served 17 months overseas in Japan and received the National Defense Medal, the Korean Service Medal and the United Nations Medal.

Doctor Zupanc earned his medical degree from the University of Minnesota Medical School in 1947, completed his internship at St. Luke's Hospital, Duluth, MN, and residency at the University of Wisconsin Hospitals. In 1956 he moved to Monroe and continued his pediatric practice at the Monroe Clinic Hospital until his retirement in 1984.

Doctor Zupanc was a Clinical Professor in the Department of Pediatrics at the UW-Madison, Chief of Staff of St. Clare Hospital, coached St. Victor's Grade School basketball team, and was a Monroe High School athletic physician for many years. He was the general program chairman for the 1974 SMS Annual Meeting, served on the Commission on Medical Education, the Committee on Medical Liability, and was a member of the 1997 SMS 50 Year Club.

Doctor Zupanc is survived by his wife, Marjorie; three children, Dr. Mary L. (David Jones) Zupanc, of New York City; John E. (Debra), of Oshkosh; Thomas (Mary), of St. Cloud, MN; and five grandchildren.

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Guest Editorial

The Disruptive-Abusive Physician Message Still Timely

by William J. Listwan, MD

The Statewide Physician Health Program (SPHP) provides compassionate assistance to Wisconsin physicians suffering from any condition that has the potential to progress to impairment. SPHP is directed by a managing committee composed of concerned and involved physicians. It functions as a subcommittee of the Commission on Mediation and Peer Review of the State Medical Society. Many assume that SPHP deals only with chemical dependency such as alcohol and drugs. However, we also become involved with physicians who have problems with psychiatric illness, senility, compulsive gambling, behavioral disorders, or physical impairment.

Our State Medical Society program has four main purposes:

1. Education and prevention,
2. Intervention, assessment and treatment,
3. Benevolent assistance,
4. Protecting the public.

These are intertwined and are of equal importance. The services of this committee can be requested by any physician, spouse, or other concerned individual on behalf of any physician licensed in Wisconsin. State Medical Society membership is not a requirement for involvement by our committee. The problems may be proven and documented, or only suspected. We can be of help in either case.

I would like to point out that Purpose #3, Benevolent Assistance, can be one of our more important contributions to the individual physician. It may take the form of financial assistance, through a loan from the SMS Foundation, or advocacy on the physician's behalf with clinic administration, hospital staff, or insurance companies. Those physicians who have been identified and accepted into the program and are participating fully will have our support. We will advocate for them by letter, phone call or personal appearance documenting their complete participation and adherence to the program. This can be extremely helpful to the impaired physician who is having problems with credentialing or employment.

In reviewing our charge, and the type of problems referred to us, we thought it might be an important time to refocus attention on the "disruptive-abusive physician." To this end, we have summarized an article co-authored by David Benzer, DO, the Medical Director for our program, and Michael Miller, MD. The article first appeared in the *Wisconsin Medical Journal*, 1995:94(8). Although initially published in 1995, we have reviewed it and believe it is still timely and pertinent for today's *WMJ* readers.

Doctor Listwan is a specialist in internal medicine who resides in West Bend. He is Chair, Statewide Physician Health Program.

A Summary

The Disruptive-Abusive Physician: A New Look at an Old Problem

David C. Benzer, DO and Michael M. Miller, MD

Chemical dependency remains by far the most common etiology of physician impairment. Other etiologies including mental illness, physical illness and stress are gaining increased recognition. The Statewide Physicians Health Program (SPHP) remains active in assisting physicians who may be ill and in need of obtaining evaluation, treatment and monitoring. The Program receives referrals from colleagues, hospitals, clinics, patients and other concerned physicians, as well as self-referrals.

Since 1985 the SPHP has received an increasing number of referrals of physicians whose impairment is manifest by their abusive and/or disruptive behaviors, along with the adaptive (or maladaptive) responses of others that may occur in the health care

continued on next page

environment in the face of these unacceptable behaviors.

These behaviors include verbal abuse, intimidation, verbal berating of ancillary staff, demeaning comments, throwing instruments or medical records, yelling at patients, sexual harassment, or even striking other members of the health care team. While these types of behaviors may have been tolerated decades ago, they are unacceptable by today's standards and present new challenges for physician health programs. There is a distinct impact on patient care, most of which is negative. Anxiety of members of the health care team, impaired communication and intimidation cause loss of clinical focus, to the detriment of the care patients are receiving.

Pathogenesis. In and of itself, disruptive abusive behavior is not an illness, but rather a symptom manifesting underlying pathology.

1. Substance abuse or addiction is a rare precursor of abusive behavior, but needs to be considered.
2. Stress impairment related to increased work hours, high volume/high risk patient load and decreased leisure time may be precursors of the condition.
3. Major psychiatric illness or disorder, particularly depressive, manic or hypomanic episodes may be elements leading to abusive-disruptive behaviors.
4. Personality Disorders such as narcissism--particularly that associated with grandiose ideas and inflated judgement of their own accomplishments and self-importance--may be the underlying factor.
5. Learned behavior, while not part of a diagnosable mental disorder, may develop from some maladaptive behaviors that are reinforced by the special and unique prerogatives granted to physicians as a result of their profession.

Presentation is usually via one or more of the following behaviors--physically assaultive or intimidating; verbally abusive or threatening; publicly berating or demeaning displays; throwing objects; yelling or condescending speech; excessively argumentative or insulting; or sexually intrusive, harassing or abusive speech or behavior.

The responses of the affected parties are important in the diagnosis of disruptive-abusive behaviors. Such descriptors as "feeling demeaned," anger, indignation, powerlessness, awkwardness, anxiety, frustration and helplessness are common when talking to colleagues and subordinates of such physicians. Equally, there may be a pattern of denial, tolerance and covering up on the part of administrators, particularly if the physician in question is "financially productive," as is often the case.

Intervention and Referral follows the same basic principles of intervention that are useful in dealing with other types of physician impairment -- use of multiple intervenors, appropriate intervenors, assiduous preparation, appropriate timing and location, anticipation of possible reactions and demonstration of genuine concern.

Evaluation and Treatment should be by a professional experienced in the care of impaired physicians without the intervenors making a presumptive diagnosis themselves. The treatment depends upon the etiology of the condition and may include such items as addiction/dependence treatment, stress management, possible extended leave of absence, improved coping skills and possibly ongoing psychiatric care.

Monitoring and Reentry to Medical Practice are marked by ongoing support by colleagues as well as documentation of the reappearance of old behaviors, with prompt mirroring of unacceptable behavior which is the key to modifying that behavior. Care must be taken that exaggerated responses, lingering resentments or unrealistic expectations on the part of previously affected staff do not color the continued reporting.

The Role of the SMS SPHP continues to be to stand ready to assist colleagues, clinics and hospitals in identifying, intervening, evaluating and monitoring physicians with all sorts of impairment, including those with disruptive-abusive behavior. By doing so, the SPHP provides assistance to colleagues and protects the quality of medical care received by the citizens of the state.

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Editor's Note:
This article may be read in its entirety on the SMS Web site, at www.wismed.com. To request a copy of the original article, or a brochure related to the activities of the SMS SPHP and/or its procedures contact Sonia Porter at 800-362-9080, ext. 278 or via e-mail at SONIAP@smswi.org.

Smoking Cessation Services Offered by Health Insurance Plans for Wisconsin State Employees

by Eric Aakko, Thomas M. Piasecki, Patrick Remington, MD, MPH, and Michael C. Fiore, MD

Abstract
Health insurance plans for state of Wisconsin employees were surveyed regarding the smoking cessation benefits offered to their members. Seven of the 25 plans (28%) cover some form of cessation treatment. Those plans that cover smoking cessation services differ substantially in the scope of benefits, and some have limitations and exclusions. These results suggest that smokers in Wisconsin are offered only limited insurance coverage for effective smoking cessation treatments.

Introduction

Nearly 35 years have passed since the publication of the first Surgeon General's report documenting the deleterious health effects associated with smoking.[1] Over this period, appreciation of the enormous toll exacted by tobacco at the societal and individual levels has broadened among both medical professionals and the general public. Heightened awareness of the tobacco problem has recently culminated in diverse and vigorous attempts at tobacco control, including intensified youth prevention efforts, litigation and innovative legislative proposals.

Approximately 25% of the US adult population smokes cigarettes, contributing to over 419,000 premature deaths annually.[2] Attaining meaningful reductions in smoking prevalence will require a balanced approach, with resources dedicated to both prevention and cessation. Prevailing conditions suggest that a significant societal commitment to making smoking cessation a health care priority will yield enormous benefits. For instance, effective cessation interventions have been developed, researched and disseminated in recent years.[3] Smokers are highly receptive to these interventions, with 70% of smokers reporting a desire to quit smoking.[4] Extrapolating from these figures suggests that about 700,000 of Wisconsin's over 1 million smokers[5] are receptive to smoking interventions annually. A large majority of smokers visit physicians each year, providing ample opportunities for the delivery of cessation treatments.[6]

If smokers are interested in quitting and effective interventions exist, why do so many smokers continue to light up? The tenacious nature of nicotine addiction accounts for some of this discrepancy—smokers often need to make several serious quit attempts before attaining stable, long-term abstinence.[7] But institutional factors also contribute to this quandary. Specifically, health care systems have not yet established the infrastructure and clinical culture necessary to insure that all smokers are offered cessation services.[8] The inconsistent coverage of smoking cessation services among health insurance plans is emblematic of this larger institutional phenomenon.

In 1996, the Agency for Health Care Policy and Research (AHCPR) released its Smoking Cessation Clinical Practice Guideline,[3] an evidence-based review of available interventions which has since become recognized as the blueprint for a new standard of care in smoking cessation. The Guideline targeted health care administrators, insurers and purchasers as a core audience, and called for health insurance plans to cover interventions shown to be effective as paid services for all subscribers. A cost-effectiveness analysis of the interventions endorsed by the Guideline revealed that smoking cessation treatments are among the most efficient preventive measures at the disposal of health care professionals.[9]

The merits of universal smoking cessation coverage have received increased scrutiny since the release of the Guideline,[10-12] but many smokers still do not enjoy coverage for effective cessation interventions. We undertook this survey to assess the prevalence and quality of smoking ces-

Aakko is with Project ASSIST, Wisconsin Bureau of Public Health, Piasecki and Dr. Fiore are with the Center for Tobacco Research and Intervention, University of Wisconsin Medical School, and Dr. Remington is with the Department of Preventive Medicine, University of Wisconsin Medical School, Madison, WI.

sation benefits for Wisconsin smokers. Health insurance plans for state employees through the Department of Employee Trust Funds (DETF) were queried, because these plans cover the largest collectively-insured workforce in the state. Moreover, health care plans for government employees often serve as a bellwether signaling future trends in health care coverage.

Methods

A brief telephone assessment was conducted in the spring of 1998, in order to examine how many health insurance plans pay for smoking cessation services (i.e., cessation counseling and/or pharmacotherapy), for Wisconsin's state employees. The state of Wisconsin employs over 36,130 Full Time Equivalent (FTE) employees.[13] During 1998, 25 health insurance companies provided regional coverage to state employees. The employee booklet for group health insurance plans entitled, "It's Your Choice, 1998," was used to identify and contact the plans. We contacted all of them and asked four primary questions:

1. "Does your health insurance plan pay for any smoking cessation services (i.e., counseling and/or pharmacotherapy) for Wisconsin state employees?
2. Does your health insurance plan pay for any smoking cessation counseling?
3. Does your plan pay for any cessation pharmacotherapy? And what kind of pharmacotherapy (nicotine replacement products and/or Zyban) are included?
4. Does your plan limit the number of times an enrollee can utilize these smoking cessation services?

Health insurance plans that did not pay for any cessation services were asked an additional, open-ended question: "Why not?"

Table 1: Health insurance plans providing cessation services for Wisconsin state employees, spring 1998.

Plans which do not offer smoking cessation services:
Atrium Health Plan
Compcare Health Services
Dean Health Plan
Group Health Cooperative of Eau Claire
Gundersen Lutheran Health Plan
Wisconsin Physicians Service (HMP- 90)
Humana/Emphesys Wisconsin
La Crosse Care Plus
Managed Health Services
Midwest Security Choice
Network Health Plan
North Central Health Protection Plan
Physicians Plus
Prevea Health Plan
Prime Care
Security Health Plan of Wisconsin
Unity Health Plans
Valley Health Plan

Plans offering coverage for smoking cessation counseling only:
Medical Associates Health Plan
United Health of Wisconsin

Plans offering coverage for pharmacotherapy only:
Standard Plan and SMP - BCBS United of Wisconsin

Plans offering coverage for both cessation counseling and pharmacotherapy:
Family Health Plan
Group Health Cooperative – SCW
Maxicare Health Insurance
Mercy Care

Results

Of the 25 health insurance plans available to Wisconsin state employees, seven (28%) pay for smoking cessation services; 18 (72%) do not (Figure 1). The health insurance plans providing and denying smoking cessation services are listed in Table 1. Of the seven health insurance plans that pay for cessation services, two provide counseling alone, one provides pharmacotherapy alone, and four provide both counseling and pharmacotherapy.

The cessation counseling services offered by the six plans range from an initial private consultation to group behavior modification. Most plans (5/6) do not require a co-pay for the counseling. However, all required the enrollee to initially pay for the service and then later reimbursed partially or wholly. Most cessation counseling is offered through the plan's affiliated hospital network or health education program. The payment for cessation counseling ranges from a low of $25 (Medical Associates Health Plan), to a high of $310 (United Health of Wisconsin). Other plans refund an enrollee's initial payment if they remain smokefree. For example, Group Health Cooperative-South Central Wisconsin (SCW), requires an initial $120 pre-payment, however $60 is refunded after six months, and the balance after 12 months, if the enrollee remains smokefree for the entire year.

The pharmacotherapy offered by the five plans pay for nicotine replacement (Table 2). All of the five plans paid for nicotine replacement products, with some variability in the specific products covered (Table 2). All five plans covered the prescription drug bupropion (Zyban™). A co-pay is required with all five managed care plans. The co-pay ranges from $4 for generic and $8 for name brand products with Maxicare Health Insurance, to a $25 yearly deductible with 80% insurer payment with the Standard Plan (Blue Cross Blue Shield United of Wisconsin). The Family Health Plan requires a $10 per week user fee for pharmacotherapy, while Mercy Care and

Table 2: Assessment of health insurance plans and smoking cessation services for Wisconsin state employees

Total number of health insurance plans, n = 25

	Yes	%	No	%
1. Does the health insurance plan pay for smoking cessation services (counseling and/or pharmacotherapy)	7	(28%)	18	(72%)
2. Does the health insurance plan pay for smoking cessation counseling?	6	(24%)	19	(76%)
a. Is a co-pay required for counseling?	1		6	
3. Does the health insurance plan pay for pharmacotherapy (nicotine replacement)?	5	(20%)	20	(80%)
a. Nicotine Gum	2		3	
b. Nicotine Nasal Spray	1		4	
c. Nicotine Patch	4		1	
d. Zyban™	5		0	
e. Is a co-pay required for pharmacotherapy?	5		0	
4. Does the health insurance plan limit the number of times an enrollee can utilize the cessation services?	5		2	
a. Yearly limit on paid services*	2		3	
b. Lifetime limit on paid services*	4		1	

* Limitations may involve a cap on cessation counseling, but not on pharmacotherapy, or vice versa.

Group Health Cooperative-SCW, will provide reimbursement for nicotine replacement products if enrollees remain smokefree over an extended period of time. Several of the plans require joint cessation counseling (behavior modification classes) with the pharmacotherapy. A majority of the managed care plans put either a lifetime or yearly cap on the amount of utilization of the cessation services. However, Family Health Plan and Group Health Cooperative-SCW, did not have either a lifetime or yearly cap on their paid services.

Most of the 18 health insurance plans responded to the open-ended question and summarized why they do not provide smoking cessation services to Wisconsin state employees. Most noted that the Department of Employee Trust Funds did not negotiate for this type of service, so they do not provide it. Several plans stated that cessation is not considered a medical priority. Others said paying for cessation services was redundant because many people quit on their own and there are nicotine replacement products available without a prescription.

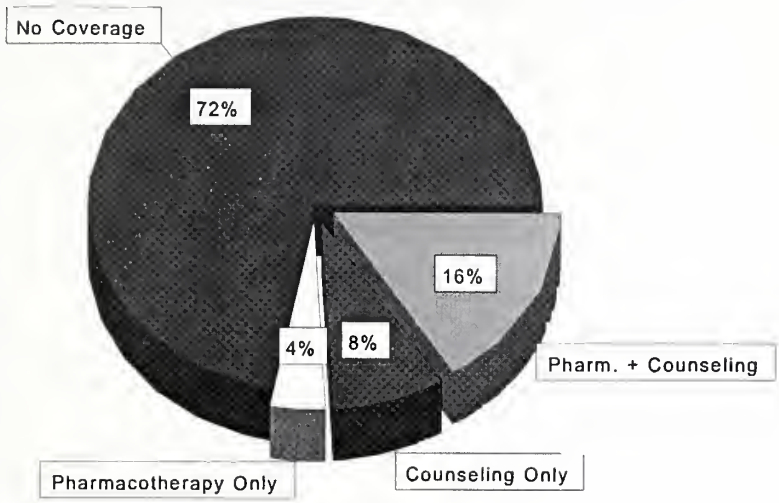
Discussion

By any standard, it must be considered disappointing that nearly three quarters of the health insurance plans available to state employees in Wisconsin provide no coverage whatsoever for smoking cessation services. Open-ended responses from plans that do not offer coverage hint at some of the barriers to universal coverage for cessation treatments. Many plan representatives noted that cessation services were not covered because the Department of Employee Trust Funds did not include cessation treatments as a component of their negotiations with plan administrators. This suggests that employers may need to shoulder some of the responsibility for providing access to cessation by insisting upon cessation benefits for their employees.[14]

Other reasons cited for lack of coverage betrayed some enduring institutional myths about smoking cessation. For instance, some plans stated that smoking cessation was not a medical priority. It is ironic that this viewpoint persists even while most of these same organizations cover the very expensive medical costs associated with the endstage morbidity resulting from smoking. Additionally, plans noted that, since many smokers quit without assistance, and since nicotine replacement is now available without prescription, there is no need to provide cessation coverage. This reasoning has an intuitive appeal, but is not supported by research, that shows that even very brief clinical interventions produce many-fold increases in long-term abstinence[3] — put simply, clinicians can do better. Moreover, it is clear that smokers vary dramatically in terms of their motivation for smoking and their preferred methods of quitting,[15] suggesting a need for access to a broad range of services. This perspective was supported by a recent study documenting increased utilization of smoking cessation services if they were covered benefits for managed care enrollees.[16]

On the other hand, it may be considered encouraging that about 25% of plans available to state employees offer coverage for some cessation services despite the fact that the Department of Employee Trust Funds did not make such coverage compulsory. Such voluntary coverage may

Figure 1. Smoking Cessation Coverage for State Employees



indicate a growing appreciation among insurance administrators that cessation coverage promotes the health of their members and curbs long-term health care costs.

The seven plans providing cessation coverage varied substantially in the types of services covered, co-pays, deductibles, and lifetime and yearly caps on benefits. Such variations are perhaps natural as managed care organizations begin to test the waters. Ideally, however, a universal benefits package will be developed that becomes an industry standard. This would benefit both smokers and their insurers. Smokers would benefit by being free to select any plan with the assurance that they will receive cessation coverage. Individual managed care organizations could be reasonably certain that they will reap the long-run economic savings associated with cessation, even in the face of significant turnover of individual members.

An industry standard for smoking cessation benefits might take several forms, but achieving the optimal combination of health promotion and medical care savings will require two specific components. First, the services covered must be *proven effective*. Only pharmacotherapies and devices approved by the FDA and cessation programs sanctioned in the AHCPR Guideline should be covered. Restricting coverage to these proven therapies will encourage their use, thereby optimizing overall cessation rates, and prevent wasteful spending for ineffective programs. Second, coverage must provide for *flexible* and *repeatable* treatment. Not all smokers benefit equally from a given intervention, and smokers differ in terms of which interventions they find appealing and/or acceptable.[15,17] A coverage policy that does not provide smokers with a choice of treatments runs the risk of deterring some smokers. Additionally, studies indicate that most smokers make several serious attempts at quitting before they achieve long-term abstinence.[7] Given this, it is clear that stringent caps on the lifetime utilization of cessation benefits can have only a very limited effect on smoking behavior at the population level.

Conclusion

Only about one-quarter of health insurance plans available to state employees in Wisconsin provide some coverage for some form of smoking cessation treatment. Parameters of coverage vary substantially across plans that do provide smoking cessation benefits. Assuming these health plans are representative of other plans statewide, most Wisconsin residents have limited access to proven cessation therapies. Managed care organizations in Wisconsin should strive to meet the AHCPR recommendation of universal cessation benefits for all beneficiaries.

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Guest Editorial

The Disease of Addiction

by Lance P. Longo, MD

"I first take a drink, then the drink takes a drink, and then the drink takes me."
-F. Scott Fitzgerald

Historical Roots

In the 1930's, Bill Wilson, the founding father of Alcoholics Anonymous (AA) wrote in the "big book" of AA that the obsession, compulsion and inability to control drinking that alcoholics manifest is the result of a "disease of the mind" which differentiates alcoholics from non-alcoholics. Yet, despite framing alcohol and drug addiction as a disease, treatment over the ensuing six decades has been primarily based on a very non-medical approach—with the exception perhaps of managing acute detoxification or treating co-morbid "medical" illnesses. Traditional treatment methods have been based on the "Minnesota Model," which emphasizes 12-step recovery philosophies, group therapies, spirituality, life skills training, and the need to overcome denial of addiction and acknowledge oneself as an addict or alcoholic, with the only reasonable treatment goal being life-long abstinence.[1]

Despite the fact that 12-step recovery programs are highly successful for 2 million to 3 million actively involved individuals worldwide, this "one-size fits all" approach doesn't suit everyone and many addicted individuals don't seek treatment or drop out of treatment prematurely, feeling as though there are no other alternatives. Likewise, the anonymity of 12-step recovery meetings has led the medical profession to regard them as somewhat mysterious and cult-like, lending mostly blind support from a safe distance. Most physicians have never been to an AA meeting, don't know much about what AA is or how it works, and aren't very good at facilitating a referral to AA for their patients.

Addiction to alcohol or other drugs is a biopsychosocial disease whose prevalence affects 10% to 15% of the population, causing significant medical, psychological and social consequences. Patients dependent on alcohol or other drugs are found in all physicians' practices, but most go unrecognized and untreated. This may be due in part to stigmatization or unsympathetic attitudes by physicians who still perceive addicted individuals as having self-inflicted problems or deficits in moral character or willpower. Most is due, however, to a general lack of knowledge about the scientific basis of addiction, diagnostic tools and available treatment options, and a general skepticism regarding the effectiveness of treatment.

Current Realities

Well, watch out Docs—here they come! Dramatic advances in both the neurosciences and the behavioral sciences have revolutionized our understanding of alcohol and drug addiction. For those individuals in whom alcohol and drug use progresses to addiction, there is clear evidence of change in brain structure and function that makes it, fundamentally, a brain disease.

Researchers have identified neural circuits that mediate the actions of all known drugs of abuse, and have specified a common "brain reward pathway" mediated by the neurotransmitter dopamine, which is stimulated by all such drugs. Not only does acute drug use modify brain activity in critical ways, but prolonged use causes pervasive changes in brain structure and function that persist long after the individual stops taking the drug.[2] Advances in neuroimaging studies, which measure site-specific brain metabolic activity, greater understanding of neurotransmitter systems and receptor subtypes, and other discoveries in functional neurophysiology have

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allowed us to better conceptualize these brain mechanisms important in craving, reward, tolerance and withdrawal.[3] Specific pharmacologic agents are being developed to target and reverse some of these drug- or alcohol-induced changes.[4] Recent examples include buproprion (Zyban), a dopaminergic agent approved for smoking cessation, naltrexone (Revia), an opioid antagonist proven useful in the treatment of alcoholism, and anticonvulsants, which may reduce "kindling" associated with alcohol and drug use or withdrawal, and thereby temper symptoms which may trigger relapse. Acamprosate, a drug available in Europe and currently undergoing FDA Stage III trials in the United States, may soon also be marketed for the treatment of alcohol dependence.

Just as we know that chronic alcohol or drug use causes neurochemical alterations which may lead to changes in neuronal hardwiring (via mechanisms of neuroadaptation and plasticity), we also know that with abstinence there is hope—brain homeostatic mechanisms may re-regulate to restore its normal balance.

Addiction is a disease that predisposes individuals to significant medical and psychiatric comorbidity. All too frequently, physicians see and treat these symptoms without addressing the underlying condition. Despite popular opinion, addiction is treatable and outcomes are similar to other chronic illnesses such as diabetes, hypertension and asthma.[5] Like these other common medical conditions, addiction has a chronic, relapsing course. Although total abstinence after a single treatment may be desired, like other chronic medical conditions this is typically unreasonable to expect. Paradoxically, unlike other chronic medical conditions, intervention and treatment for addictions has historically focused on patients with the most refractory problems or advanced stages of the disease, ignoring those less compromised. Also, until recently, the most intensive interventions have been used as initial treatment modalities (e.g., the 28-day inpatient rehab hospitalization), unlike less intense initial interventions employed in the treatment of other chronic medical conditions (e.g., treating hypertension or diabetes with diet and exercise).

"It is no longer accurate to define addiction by physical withdrawal symptoms, and detox is not treatment. (The) focus should be placed on the essence of addiction; the compulsive, uncontrollable drug craving, seeking and use for no medical purpose, despite negative health and social consequences."

Future Challenges

By its very nature, addiction pervades all aspects of life—family, job, health and community. Therefore, treatment providers must focus on long-term functionality and quality of life rather than viewing treatment as a series of discrete short-term episodes. A major task of treatment for many individuals should be to increase the intervals between relapse and to reduce the intensity, duration and consequences of relapse if it does occur. Helping the patient to overcome feelings of shame, guilt, and failure, enhancing self-efficacy, and instilling hope about recovery are the most important messages a physician can convey to his or her patient. ("If at first you don't succeed try, try again.")

Understanding and treating addiction appropriately requires a clear sense of what addiction actually is and what really matters in the disorder. For example, many physicians still focus primarily on the physical dependence aspect of addiction and see detoxification as the primary treatment objective. But physical dependence is not the most important feature of this disorder. Even the florid physical withdrawal symptoms of heroin and alcohol addiction can be relatively easily managed with medications. Moreover, some of the most addicting substances, like cocaine and amphetamines, do not produce traditional physical dependence as defined by the presence of dramatic physical withdrawal symptoms. It is no longer accurate to define addiction by physical withdrawal symptoms, and detox is not treatment.

A more appropriate focus should be placed on the essence of addiction; the compulsive, uncontrollable drug craving, seeking, and use for no medical purpose, despite negative health and social consequences. It is this aspect which Bill Wilson described over 60 years ago that is at the heart of all functional impairments that characterize addiction and its consequences for individuals, their families and society. The physicians' task is to first identify these disorders in their patients, then to assess their patients' readiness and motivate them to make significant life changes, facilitate their entrance into appropriate treatment, encourage their retention in treatment, involve family or other supports, and treat comorbid

psychiatric or medical illnesses which may impact their prognosis. Very strong evidence exists to support that brief physician advice to patients, administered in a simple format, may significantly reduce overall harm and subsequent morbidity.[6]

"Medicalizing" alcohol and drug addiction does not occur at the expense of 12-step recovery programs or other psychosocial treatment modalities. That addiction is a brain disease doesn't mean that psychological or societal factors don't influence its development and progression. Indeed, it is the combination of positive reinforcements ("carrots") and negative reinforcements ("sticks") that makes drugs addictive, and people learn to associate drinking or drug use with emotions, circumstances or environmental situations which become conditioned cues to trigger use. There is also clear evidence supporting the efficacy of certain psychotherapeutic and behavioral approaches to help people change maladaptive patterns. "Project Match," a recently completed large multi-site study of psychosocial therapies for alcohol dependence found three distinct treatment approaches—cognitive behavioral coping skills therapy, motivational enhancement therapy and 12-step facilitation therapy—to yield excellent and approximately equally efficacious treatment outcomes.[7]

Framing addiction as a disease may bring patients out of church basements and into doctor's offices, where they may gain access to a wider range of state-of-the-art treatment modalities. Understanding addiction as a medical illness demystifies and destigmatizes the perception that addiction reflects an underlying defect in moral character or willpower, and may help individuals to overcome psychological or social barriers to treatment.

Alcohol and drug addicted individuals are not necessarily "bad" people, and when they finally realize it, they will be asking you for help! All physicians should meet this challenge and responsibility by staying abreast of the latest research on the diagnosis and treatment of the brain disease, addiction.

Addendum

Physicians interested in becoming more involved in the treatment of addiction should consider joining the American Society of Addiction Medicine, (ASAM), 301-656-3920 or visiting their Website @ www.asam.org.

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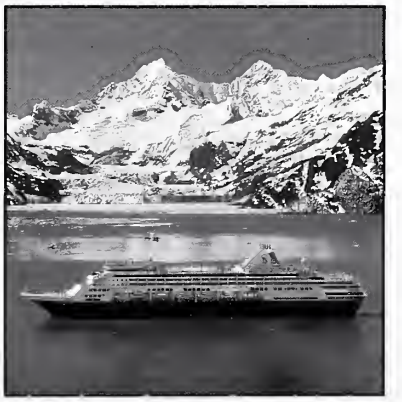

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Resting Assured: Risk Management in the Prescription of Controlled Substances

by Lance P. Longo, MD

Introduction

Physician concerns regarding possible legal, regulatory, licensing or other third party sanctions related to the prescription of controlled substances contribute significantly to the under-treatment of pain syndromes and anxiety disorders.[1] Pain and somatic manifestations of anxiety are two of the most common reasons that people consult a physician, yet they are frequently inadequately treated leading to enormous social cost in the form of lost productivity, needless suffering and excessive health care expenditures. Numerous public policy groups, subspecialty medical societies, and the American Medical Association have issued strong statements attesting that, when it comes to diagnosing and managing conditions that indicate a use for controlled substances, medical practice does not meet acceptable levels of quality.[2,3]

At the same time, however, reports from state medical boards indicate that allegations of controlled substance over-prescribing are the leading cause of physician investigation and action taken against physicians' licenses. In addition, the street value of diverted prescription drugs has been estimated by the Drug Enforcement Agency as second only to that of cocaine—and greater than that of marijuana and heroin.[3] This sets up an unfortunate paradox for physicians. Desire to relieve pain, anxiety and other discomfort must be weighed against fear of creating addiction, of being investigated by law enforcement or licensing authorities, and of being "scammed" by the minority of patients who have addictions or sociopathic tendencies. These competing concerns often leave physicians feeling quite ambivalent and uncomfortable about prescribing controlled substances, to the detriment of the majority of patients who suffer legitimate illnesses and are often left undertreated.

Controlled Substances

The medications that are most often implicated in prescription drug abuse include opioid analgesics, benzodiazepines, stimulants, barbiturates and other sedative-hypnotics. (Table 1) Although the pharmacologic characteristics of these classes of drugs vary widely, they share several important similarities:

1. Self-administration studies have established that each are "positive reinforcers" and are preferred over placebo—especially in individuals with either current or past addiction problems (and, as some studies suggest, in sons and daughters of alcoholics, vs. controls.)

Table 1. Drug Enforcement Agency Scheduled Substances

Schedule 1	No accepted medical use (heroin, marijuana, LSD)
Schedule 2	High abuse potential with severe dependence liability (morphine, methadone, oxycodone, amphetamines, secobarbital)
Schedule 3	Less abuse potential than schedule 1 and 2 substances (acetaminophen with limited quantities of certain narcotic drugs)
Schedule 4	Less abuse potential than schedule 3 substances (phenobarbital, benzodiazepines, propoxyphene, pentazocine, phentermine)
Schedule 5	Least abuse potential of scheduled substances (buprenorphine, propylhexedrine)

2. Although these classes of agents differ and each affects different brain neurotransmitter systems, they all appear to inevitably trigger dopamine release in what has become known as the common "reward pathway" for all drugs of abuse—the mesolimbic dopamine pathway.
3. Each are "habit forming," frequently causing a state of physiologic dependence if taken in large enough quantities for long enough periods of time. Thus, taper may be required to prevent withdrawal symptoms on discontinuance.
4. All scheduled drugs have psychoactive effects and may be abused and/or have a "street value."
5. They are scheduled by the Drug Enforcement Agency (DEA), require a specially applied for and individually assigned DEA number, and require specific prescribing practice guidelines, laws and regulations.

Abuse Characteristics

In general, mood-altering substances are more highly reinforcing to individuals with addiction proclivity if they have a rapid onset of action, a high potency, a brief duration of action, high purity, water solubility (for I.V. use) or high volatility (ability to vaporize if smoked). Amongst benzodiazepines, for instance, highly lipophilic agents (those that cross the blood-brain barrier more rapidly) such as diazepam, and short half-life, high potency agents such as lorazepam or alprazolam are the most reinforcing and, therefore, the most likely to be associated with abuse.[4] Studies evaluating the abuse liability of various opioid medications clearly indicate that controlled-release formulations (e.g., MS contin) and long half-life agents (e.g., Methadone, LAAM) have lower abuse potential and street values than high-peaking, rapid-onset opioid formulations (e.g., hydromorphone).[5]

Additionally, trade name prescription drugs are routinely worth more than their generic equivalent when sold on the street because they are readily recognizable as the "real thing" through comparison with the product pictures in the physician desk reference. Generic pills do not enjoy this same status symbol, nor "purchase power."

Prescription drug abuse alone is uncommon, but a significant proportion of polydrug abusers utilize prescription drugs, either from the same class as their drug of preference (e.g., heroin/narcotic analgesics) or different classes. Benzodiazepines, for example, have multiple uses for polydrug addicts; they are used to enhance the euphoriant effects of opioids, to alleviate withdrawal or abstinence syndromes between "fixes," to temper cocaine highs, and to augment alcohol (synergistically) or ease withdrawal states.[6] It is estimated that 80% of benzodiazepine abuse is part of polydrug abuse, with concurrent addiction to opioids and alcohol being most highly correlated.

Definitions: Use, Abuse, Dependence, Addiction

Use. The vast majority of prescribed controlled substances are used appropriately, as prescribed. Benzodiazepines are prescribed to 10% to 12% of the population annually for a wide variety of situations including formal psychiatric disorders, insomnia, anxiety or agitation associated with medical illnesses, pre-surgical or procedural anesthesia, convulsive disorders, or alcohol or drug detoxification.[7] Most use is short-term, and only 1% to 2% of the population use benzodiazepines chronically, and most individuals do not lose control of their use.

Abuse refers to use in a manner other than what the prescribing physician intended. This may include utilizing the medication "recreationally," in larger amounts, with greater frequency, for different indications, or via different routes, usually leading to adverse consequences.

Addiction is a further evolution of this preoccupation, loss of control, and obsessive-compulsive pattern that actually takes on a life of its own as a primary ill-

ness. Physiologic homeostatic changes leading to tolerance, withdrawal or sensitization may occur, and cognitive changes are common.

Dependence is a physiologic process, which is a predictable event in the prescription of opioids, benzodiazepines and barbiturates, and to some degree stimulants. Dependence is dose, time and potency-related and may result in tolerance (to side effects as well as therapeutic effects) and withdrawal. Other non-controlled substances may also invoke a measure of dependence. For instance, abrupt cessation of many antihypertensive agents might precipitate rebound blood pressure increases.

Understanding the different meanings that these terms imply not only helps the physician rest assured about liability risks, but also helps the patient overcome the stigma of getting "hooked" on a legitimately used controlled substance.

Screening for Addiction

Addictive disorders affect 20% to 50% of hospitalized patients, 15% to 30% of patients seen in primary care settings, and approximately 50% of patients with psychiatric illness, yet most individuals are not diagnosed and are left untreated.[3] Patients with acute or chronic pain, anxiety disorders, and attention-deficit disorder are at increased risk for addiction co-morbidity. Physicians treating these patients must ask their patients about their substance use history, including alcohol, drugs and prescription drug use patterns in the past. Basic screening questions should be integrated into all history and physical exams. When evaluating a patient the physician should:

1. consider the temporal onset of each disorder (AODA, medical, psychiatric),
2. elicit baseline medical or psychiatric status during periods of abstinence,
3. consider family history and genetic risk factors,
4. determine the impact of other psychosocial stressors,
5. consider the patient's current state (intoxication or withdrawal) and stage (early or chronic) of addiction.

The physician should be especially wary of interactions with patients occuring in the context of a withdrawal state, which may manifest itself as pain or anxiety, lending a perception of objectivity to the assessment which appears to justify prescription of an opiate or benzodiazepine. Anxiety may also appear as a symptom of other psychiatric disorders such as major depression, psychotic disorders, or bipolar disorder—and as numerous other non-addictive psychotropic medications may more appropriately treat these disorders.[6] Likewise, the underlying illness or injury causing pain as a symptom should be sought and treated whenever possible.

Most addiction medicine specialists feel that physicians should not prescribe potentially addictive controlled substances to patients with current or past addictions. However, if acute pain management is necessary, it should not be withheld. After appropriate dosing requirements are ascertained, medications should be administered via scheduled rather than "prn" regimens. If possible, non-medication alternatives such as biofeedback, relaxation techniques, TENS units, physical therapy and psychotherapy should be utilized. Newer procedures offering pain relief include eiduroscopy, spinal cord stimulation and intraspinal drug therapy. Additionally, numerous non-addictive medications have proven efficacious in the treatment of pain, anxiety disorders, insomnia and attention-deficit disorder. (Table 2) [6,8-10]

Doctor-Patient Relationship

The medical paradox of concomitant over-prescribing and under-prescribing of controlled substances may be reversed if one understands typical behavior patterns portrayed by chemically dependent patients and reciprocal physician responses. Although the prevalence of prescription drug abusing patients varies widely among different physician practices, it is likely that any physician in any practice will be faced with the uncomfortable dilemma of deciding whether or not to prescribe a potentially addictive substance to a substance-abusing patient.

Patient Characteristics

Several things tend to occur when patients who abuse prescription drugs interact with the medical care system: escalating use patterns, drug seeking behavior, doctor shopping, and the use of scams to maintain and increase the supply of drugs.[2]

1. Escalating Use. Overuse of a prescribed medication may result from under-prescribing or underestimation of the magnitude of the symptoms by the physician in the first place. Indeed, many patients are under-treated due to misplaced fear of addiction, or lack of physician knowledge of pharmacokinetic properties of medications (e.g., half-life). However, if a pattern of overuse or escalation of use develops, and additional drug seeking behaviors emerge, a more detailed addictions assessment is necessary.

2. Drug Seeking Behavior. This is a widely used but poorly defined term that may describe combinations of these patient behaviors:

- subjective report of symptoms that markedly deviates from objective observational evidence or physical exam findings,

- insistence on controlled drug prescriptions on the first visit and claims that other non-addictive medications "don't work" or that they have multiple allergies to them,
- remarks about having a high tolerance,
- "lost" prescriptions or running out of prescriptions early,
- selling prescriptions, prescription forgery and using other's prescriptions (family, friends),
- injecting oral drugs,
- pitting one doctor's treatment opinions against another's,
- resistance to other non-pharmacologic treatment recommendations (behavioral training, biofeedback, etc.),
- drug "hoarding,"
- using illicit drugs with the same pharmacologic means of action interchangeably with the prescription drug (e.g., heroin/narcotic analgesics, alcohol/benzodiazepines).

3. "Doctor Shopping" describes patients who use at least two and often multiple physicians in their attempt to obtain an adequate or increasing supply of controlled prescriptions. They often "role play" with a number of different well-intentioned but often naive physicians to obtain multiple prescriptions, which are either used personally or sold to support other drug habits. This is most common in emergency room settings, where staff may not know the patient. Frequently drug addicted individuals present "after hours" and claim to be from "out of town."

Doctor shopping has historically been difficult to identify, but with the move towards computerized pharmacy records and managed care utilization review, patients are finding this increasingly difficult. Medical practitioners should ally with their local pharmacists, who share the legal liability when filling a controlled drug prescription, and actively pursue collaboration and efficient communication strategies.

4. Scams are used falsely to justify the need or desire for additional medications, more potent or higher dosage formulations, or for higher street value brand name drugs. They are schemes utilized to obtain controlled substances for illegitimate reasons, or reasons to avoid uncontrolled prescription alternatives. Most scams produce discomfort in physicians, and if patients encounter resistance to the scam, they are often willing to push the physician. Patient-generated pressure to prescribe in the face of clinical hesitance is one classic sign of a scam.

Patients rarely self medicate with prescribed agents that do not produce a high or a reward, and they are often quite adept at projecting their misery and helplessness onto "prospective prescribers." An "initial no" (refusal to prescribe by the physician) changing to a "yes" (eventual willingness to prescribe) in the face of patient-derived pressure is considered by some experts to be pathognomonic of prescription drug abuse. Once a scam has worked in a given practice, that scam will continue to surface periodically in that office practice until the physician ceases to reinforce the scam. (It is commonly observed by drug enforcement investigators that the greater ease the patients find when practicing scams in a physician practice, the higher the prevalence of prescription drug abusing patients that will be seen in that practice.) Dealing with scams consists of learning to recognize the common ones, refusing to give in to them, and practicing the skill of turning the tables on the scammer.[2]

The physician may turn the tables on the patient and effectively shift discomfort to the patient while still refusing to prescribe by making statements such as, "I am feeling pushed by you to write a prescription today that is not medically indicated and thus I am concerned about you and we need to talk about your use of alcohol or other substances." Physician fear and avoidance of confrontation play into the hands of chemically dependent patients, who have a stronger relationship with the prescription than they do with the physician. Additionally, in this age of managed care, physicians are under increasing pressure to see more patients in shorter amounts of time, and often would rather "write (RX) than fight."

Physician Mind Thyself

The American Medical Association has described four mechanisms by which a physician becomes involved in over-prescribing, summarized by the four D's: dated, duped, dishonest, and disabled.[3]

1. *Dated* refers to physicians who are out of date regarding knowledge of pharmacology and the differential diagnosis and management of chronic pain, anxiety, insomnia and addiction. Reports suggest that physicians tend to be more out of date in their knowledge and less confident in their skills in these areas than they are in most areas of medical practice. Given this, it is no wonder that physicians routinely under-prescribe and/or over-prescribe controlled substances.
2. Physicians may be *duped* by patients. This refers to the widely acknowledged fact that physicians are generally a caring, trusting group of professionals trying to help their patients in an open and honest relationship based on mutual respect.
3. *Dishonest* physicians refer to the so-called "quacks, cranks, croakers and script docs." A few of these physicians are in every geographic area and are

willing to write prescriptions for controlled substances in exchange for monetary renumeration. Such dishonest physicians should be reported to the state medical board or other law enforcement agencies and appropriately investigated and prosecuted if indicated.

4. *Disabled* physicians are defined in this context as physicians suffering from a medical or psychiatric disability such as chemical dependency or a personality disorder. These physicians are thought to be loose prescribers of controlled substances, or less apt to confront individuals abusing substances out of fear of raising the index of suspicion of their own impairment.

Table 2. Pharmacologic Alternatives to Controlled Substance in Patients With Addictions

Anxietv Disorders
- Antidepressants (most)
- Buspirone
- Valproic acid
- Antihypertensives
- Atypical neuroleptics

Insomnia
- Sedating antidepressants
  - trazodone
  - doxepin
  - amitriptyline
  - nefazodone
  - mirtazepine
- Zolpidem
- Antihistamines

Attention-Deficit Disorder
- pemoline
- buproprion
- desipramine
- venlafaxine
- clonidine
- SSRI's

Pain
- NSAID's
- acetaminophen
- tramadol
- antidepressants
- anticonvulsants
- steroids
- muscle relaxants

Risk Management

Physicians should not fear disciplinary action from state regulatory or enforcement agencies for prescribing controlled substances for legitimate medical purposes in the usual course of professional practice. Physicians prescribing controlled substances can optimize risk management (and sleep better) by implementing a few basic safeguards into their practices.

Maintaining a Current Knowledge Base. Physicians prescribing controlled substances such as benzodiazepines, opioids and stimulants should understand their pharmacology, including pharmacokinetic and pharmacodynamic properties, drug-drug interactions and signs of intoxication and withdrawal. They should also be aware of epidemiology of abuse, appropriate treatment indications and contraindications, and be able to perform basic alcohol and drug addiction screening assessments.

"Write (RX) Right." Careful charting and documentation habits are essential when initiating a controlled drug regimen. Writing prescriptions to decrease tampering and keeping prescription pads under close control are prudent precautions. Even more important is the need to document clearly in progress notes the diagnosis, the clinical indications, the expected symptom end points and the treatment time course whenever prescribing controlled substances. A medication flow chart is useful to monitor refills, symptoms and time course or chronicity of prescribing. Carefully negotiated and enforceable practice policies about calling in refills and cross coverage prescribing are essential. When writing prescriptions:

1. Write for exact amounts to carry through to the next appointment (vs. #100 with 5 refills, etc.).
2. Hand write the number dispensed, e.g. 14 (fourteen).
3. Consider instituting a one-doctor/one pharmacy treatment plan with the patient.

Because of the increasing number of persons receiving long-term Schedule II drugs such as Ritalin and some analgesics, the Wisconsin Pharmacy Examining Board has issued an interpretation which permits pharmacists to accept C-II prescriptions which are dated on the date of issue, but intended for future dispensing. Under this interpretation, the prescriber may issue three prescriptions for the medication, all dated on the date of issue. One is intended for immediate dispensing, one is marked "dispense in 30 days" and one is marked "dispense in 60 days." All are presented to the pharmacist at the same time (to comply with the seven-day rule). The pharmacist then keeps all three on file, and dispenses one each month. By doing this, the physician can issue a 90-day prescription series, which may be a convenience for stable maintenance patients. The Pharmacy Examining Board does not expect that this will be done in all cases, as some patients need to be seen more frequently and prescriptions should not be written for a period beyond the next practitioner-patient contact.[11] It is unlawful to provide maintenance or tapering prescriptions (including, but not limited to, methadone) for a narcotic to a patient who is addicted to con-

trolled substances, unless one is registered with the DEA as a treatment program. Most commonly this refers to methadone clinics, but the rule applies to any addiction treatment and any narcotic controlled substance.

Legal Dimensions

Ethical and legal dilemmas begin as clinical dilemmas and are sometimes exacerbated by the constraints of managed care. Some cardinal principles of risk management need to be carefully applied to treatment involving controlled substances.[12]

1. Informed consent can be utilized as an alliance building process. Patients considering taking controlled substances should be informed of the potential for physical dependency and the possibility of mild to moderate rebound even with gradual tapering. One should carefully review the benefits and risks of medications chosen, as well as other treatment choices available.

2. Documentation of the decision-making process. A physician working with a patient at high risk for litigation can manage that risk by documenting not only what was done, but also how that course of action was chosen. A record should be kept of the informed consent process, including assessment of the patient's decision-making competence. Any treatment protocol that deviates from the community standards of care should be carefully considered and voluntarily chosen by the patient and documentation of such should be explicit in the medical record.

3. Duty to warn/third party liability. The so-called "driving cases" are a special example of a specific "duty to warn" involving benzodiazepines. Failure to inform patients of the risk of driving while on medication may lead to a claim of negligence against the prescribing doctor.[13] In a Canadian sample of drivers and pedestrians killed in accidents, 10% were benzodiazepine-positive at postmortem.[14]

Another recent British study found that users of anxiolytic benzodiazepines were at significantly increased risk of road-traffic accidents.[15] Zopiclone, a short-acting hypnotic agent similar to Zolpidem, was also found to have residual effects that impair car-driving performance. The authors recommended that users of psychoactive drugs that compromise driving ability (benzodiazepines) be advised not to drive.

Increased risk of driving errors occurs mainly after the initial dose of benzodiazepines, or with dose increases, and may occur with significantly increased frequency if a patient is also consuming alcohol. Whether chronic users of therapeutic doses of benzodiazepines who are not using alcohol or other sedative hypnotics are at increased risk for motor vehicle accidents is still debatable, but given the liability risks, physicians should certainly apprise patients of these concerns and document such in the medical record.

4. Avoid prescribing medications in isolation from other therapies. As with any other medications, controlled substances can be used most safely and effectively as part of an overall treatment plan which is monitored in an ongoing fashion. Other treatment modalities such as physical, behavioral or psychotherapies should be utilized conjointly when indicated. Periodic review of the course of treatment should occur at reasonable intervals and include input elicited from multidisciplinary staff or consultants.

Consultation

Consultations with peers, supervisors and others with specialized expertise can clarify the decision-making process, thereby raising the level of clinical care and also strengthening the treating physician's position in administrative or legal actions.[12] In many cases, the consultation will be in a specialized clinical area such as addiction medicine, psycho-pharmacology or pain management, or in forensic psychiatry. It is better, of course, for such consultation to be obtained prospectively than retrospectively in cases involving litigation.

Conclusion

There is little doubt that narcotic analgesics, sedative-hypnotics, and psychostimulants are effective medications for a wide range of medical and psychiatric conditions.

Although diversion of controlled substances or other addictive behaviors should be a concern of health care professionals, efforts to stop diversion should not interfere with appropriate prescribing practices and physicians should not be encumbered by inappropriate scrutiny upon their practice.

The paradox of concomitant over-prescribing to a minority of "high risk" patients and under-prescribing controlled substances to the justified majority is within the power of physicians to correct. It requires actively seeking education in traditionally neglected areas of medical education and avoiding prescribing controlled drugs to patients with ambiguous or vague clinical indications in isolation from other therapies. Attempts to limit prescribing to short therapeutic time courses, ongoing reevaluation and periodic review of treatment efficacy, careful chart documentation practices, and consultation are important risk management techniques. By understanding common doctor-patient relationship dynamics when treating chemically depen-

dent individuals the current clinical paradox can be reversed. This reversal may result in marked decreases in prescribing to the minority of patients who give controlled substances a "bad rap," and increase prescribing to the majority of patients who suffer legitimate illnesses but who are often under-treated and/or stigmatized.

Acknowledgement
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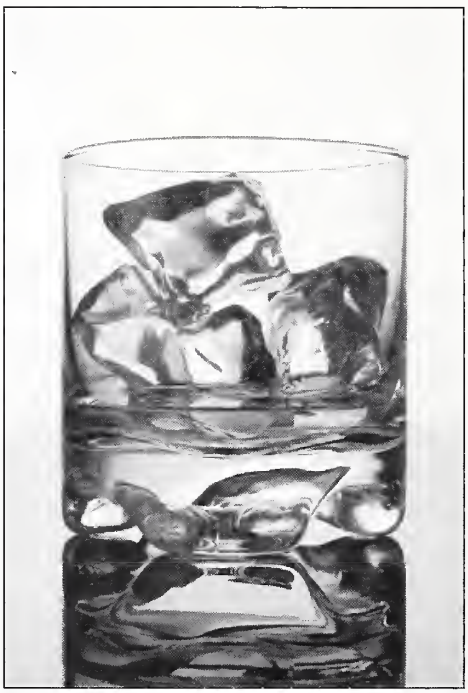

Tobacco & Alcohol: Still Masters of Addiction

by Marc Kennedy, Special to WMJ

Addiction is a hot topic. It attracts interest in the media, both legitimate news outlets and tabloids. With the expansion of cable television, outlets for the more tawdry and sensational have found a staple source of subject material by delving into the lives of individuals struggling with various addictive disorders. Flip a switch, a knob or a page to hear, see or read the evidence:

- a newspaper runs a story on a TV evangelist who says he's compulsively obsessed with sex;
- a cable talk show features a rock star who was a former junkie;
- a radio report contains an interview with a sports figure hooked on pain-killers.

Add to the mix that the neighbor says the kid down the street is stuck on glue or some other inhalant, and there is more material than you can shake a stick.com at on the Internet.

There seems to be nearly an inexhaustible craving for information, some might say gossip, on addiction and its consequences. It's not that people with chemical dependencies and obsessive behavior disorders are not out there. They are. And, they need help. Fortunately there are clinics, health care professionals, and to an extent, medical coverage to address most of these issues, though appropriate availability of such services is often debated under certain managed care systems.

One aspect that medical experts agree is paramount in treating true addiction or obsessive behavioral disorders: Those so afflicted have to take that first crucial step toward recovery by

admitting they have an acute problem that is controlling, if not devastating, their lives — relationships with families, friends, their careers and personal health.

But something in this milieu is slightly askew, something amiss amid this cacophony. Though somewhat ignored in the public hubbub, two key players loom large in the background on the addiction landscape. Perhaps because they are not as spectacular; or because they are popular — more than 70% of people in Wisconsin use one and nearly 25% use the other; or maybe because they are legal, and heavily advertised, marketed and lobbied for in state and federal legislatures.

Of course, these are tobacco and alcohol. According to several Wisconsin addiction experts, no discussion of addiction can stray too far from them when discussing the past, present and potential damage these substances have, can and will wreak on the American health care delivery system and economy.

Tobacco Still King

"We can never lose site of the addictive and destructive attributes of nicotine," said Michael Miller, MD, Meriter Hospital in Madison, who is also the national secretary for the American Society for Addiction Medicine. "It produces four times the amount of premature deaths as alcohol; over three times the amount of premature deaths of all other drugs combined. The adverse effects on a developing fetus from maternal cigarette smoking are far better known and more generally profound than adverse effects of crack smoking.

"Tobacco is a first-class carcinogen and environmental toxin. It is the number one cause of preventable health problems in America."

More than 450,000 people die annually in the United States from the effects of smoking nicotine cigarettes, according to the American Cancer Society.

"About 1,000 persons per day quit," said Dean Whiteway, MD, Lutheran Hospital and Gundersen Clinic. "About 1,000 die from smoking-related illness, about 1,000 die from other causes. So, to maintain their market, tobacco companies have to recruit about 3,000 new smokers each day. Whether they want to admit it or not, they have to target the younger crowd to make up this difference. And, there is some evidence that high school numbers have been going up."

It isn't only high school kids. A Harvard School of Public Health study reported that smoking among college students rose 29% from 1993 to 1997. Researchers found that 28% of 14,000 students at 116 colleges surveyed in 1997 described themselves as "current smokers," compared with 22% in 1993. A 30% increase in high school smoking the previous decade explained part of this rise. Almost 90% of college smokers lit up for the first time in high school, but the researchers found that more than 25% did not smoke regularly until they got to college. Concurrently, college smokers reported that they attempt to quit more often than other smokers, which indicated that their tobacco habit was "in flux."

Consistency is Key to Quitting

Though they may have heard it before, Whiteway encourages general practitioners and family physicians to diligently screen their patients for smoking.

"I would like them to at least mention concern for smoking patients at each clinic visit," he said. "They should never let a patient leave without talking about persistent smoking. When I do this, I point out to my patients that there are three kinds of smokers: those who know that they must and are ready to quit, those who are getting ready, but have not set a date, and those who don't want to quit. They are not ready to even think about it. No matter which group you are addressing, a good doctor should never let them off without mentioning it. A doctor's advice is the most effective. If their physician doesn't suggest they quit, who else will give them this advice?"

Whiteway added that helping to motivate patients to start quitting is key.

"Here, we regard smoking status as a vital sign, pulse, temperature, and add 'do you smoke?' to the list. Whether it's the physician, the nurse or the physicians assistant, the person who walks into the clinic will get smoking status checked off on the chart along with their blood pressure."

Chronic smokers often tire of their GP's prodding. But Whiteway said mentioning it consistently is important.

"All I ask is that the doctors remind them every time. You don't need to hard sell it if they aren't interested. But you can at least add that 'we'll talk about it next time'."

Encouraging those who keep trying to quit is another key.

"If they have recently quit, the most important advice is not to make the mistake of thinking they can just have one," added Whiteway. "There is always the excuse that 'I found a pack in the car, I'll just finish it off;' or 'I'll have just one this once.' Then it becomes two, then three, then they are back on a pack a day."

It's mainly advice and concern about smoking at every visit, said Whiteway, which is crucial to helping those addicted to nicotine break the habit. Medical experts agree that the most influential person in altering smoking behavior is the family physician.

Wisconsin: A Leader in Liquor

The Badger State can claim leadership in a variety of categories nationally: low unemployment, a strong economy. Unfortunately, this notoriety includes alcoholism and binge drinking. Indeed, while the flagship campus of the University of Wisconsin is renowned for producing award-winning researchers, Peace Corps volunteers and now, Rose Bowl victories, it is also routinely labeled among the top party schools in the nation.

"Wisconsin is one of the top states—fourth, I believe—in alcoholism," said Whiteway. "And, if we are not first in binge drinking, we are close to it. After smoking, alcohol is responsible for the most premature deaths annually in this country, about 100,000. All other drugs pale by comparison to tobacco and alcohol. Combined, they account for about 20,000 premature deaths per year."

As with tobacco use, physicians can play a key role in identifying patients with alcohol problems and in assisting in their treatment. Whiteway points out that though physicians can have significant impact on such patients, subtlety and tact are important in dealing with this sensitive issue. Alcoholics will rarely walk into their physician's office and admit they have a drinking problem.

"It doesn't always help to ask how much you drink," he added, suggesting that often a more circuitous route will help both parties identify the real issue at hand. "You end up talking about problems: financial, marital, school, work, etc. You try to get an oblique history; you do a little fishing. But you have to have the patient's trust. If you are giving them a sermon or it sounds as though you are accusing them of having a moral or personality weakness, you are not going to get anywhere. If you treat it like a disease and are morally neutral, you will accomplish more."

Once a physician establishes that there are problems, he or she can begin to broach the subject of how the patient deals with stress.

"Then you can start asking if they drink sometimes. Then you can get into how much they drink."

To help ascertain the extent of a patient with a suspected drinking problem, Whiteway uses the CAGE approach, as developed by Michael Fleming, MD, PhD, professor of family medicine at the UW Medical School. An article on Fleming's method was featured in a clinical abstract in the December 25, 1996 edition of *JAMA* of a study of more than 5,000 elderly patients in southern Wisconsin. This study found that employing the CAGE questionnaire in screening patients helped to identify patients who regularly abused alcohol.

The CAGE acronym stands for:

C — cut-down: Do you yourself see any reason or need to limit use?

A — annoyed or angered: Has anyone annoyed or angered you by bringing it up?

G — guilty: Do you feel guilty about any of the behavior?

Addiction Resources

American Society of Addiction Medicine
4601 North Park Ave.
Arcade Suite 101
Chevy Chase, MD 20815
301-656-3920
Email@asam.org
http://www.asam.org

Alcoholics Anonymous
AA World Services, Inc.
P.O. Box 459
New York, NY 10163
212-870-3400.
http://www.alcoholics-anonymous.org
or see "Alcoholics Anonymous" in any telephone directory

National Institute on Alcohol Abuse and Alcoholism (NIAAA)
6000 Executive Boulevard,
Willco Building
Bethesda, MD 20892-7003
http://www.niaaa.nih.gov.

National Clearinghouse for Alcohol and Drug Information
"Prevline: Prevention On-line"
http://www.health.org/index.htm

Research Institute on Addictions
State University of New York at Buffalo
1021 Main Street
Buffalo, NY 14203-1016
716-887-2566
www.ria.org

The National Center on Addiction and Substance Abuse at Columbia University
152 West 57th Street, 12th Floor
New York, NY 10019-3310
Phone: 212-841-5200
www.casacolumbia.org

The Additions Newsletter
The American Psychological Association
http://www.kumc.edu/addictions_newsletter/

E — eye-opener? Do you drink in the morning to steady your nerves?

As with smoking, Whiteway screens patients in a 'round about way about drinking. If he detects evidence of a drinking problem, he casually begins the CAGE approach.

"After going around the issue itself, then I get to the 'how much do you drink?' question. Then I teach prudent drinking, and dig a little more to see if there is a medical history or adult parent with a drinking problem," he said

The important part of this "brief intervention," as Whiteway calls it, is to help the patient recognize the link between bad things that are happening to them and alcohol consumption.

"Then I ask the patient what he or she thinks we should do," added Whiteway. "I try not to be an authority figure. Instead, I sort of let them decide. Let's think about this together: your blood pressure is up, your liver test a little off; your spouse is on your case. You had a DUI a few years ago.' Then I ask them to add it all up, then balance these negative aspects with the good things they have in their lives, then ask them what they think they should do. Many times, they will be the ones who say that 'maybe I should cut back on my drinking'."

Once the physician and patient have together identified the pattern of negative effect alcohol is having on the patient's life, they need to agree on a course of action, according to Whiteway. "Then you decide whether the patient should cut down or cut out alcohol entirely," he said. "Set a limit, perhaps a standard drink a day, then agree to meet in two or three weeks to discuss how you did."

The important aspect to consider here is that the full-blown alcoholic will be unlikely to limit his or her drinking. Therefore, cutting back to a drink or two a day as a strategy has little chance to succeed, Whiteway added.

Alcoholism is often missed in the emergency room, though a drinking problem is often the reason why the patient ends up in the ER.

"Of patients who arrive in the ER that are hurt or injured badly enough to be kept overnight, about 40% are legally intoxicated," said Whiteway. "These people are often in crisis, this is overlooked. Alcohol is the reason they are there, yet they are often not referred for treatment or counseling. Even if noticed at

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when they are in the ER, a different doctor takes care of them once they are on the ward, and often no one passes the baton."

To address this issue requires a certain level of follow-up that many medical centers lack. It may be obvious to the ER physician that a patient is intoxicated and acting erratically, but the doctor the next morning sees a rational human being who insists he or she is not responsible for being in the hospital or clinic.

One of the key indicators of a predisposition of alcoholism is family history.

"When someone is 18, nearly all students try alcohol," said Lance Longo, MD, Medical Director of Addiction Psychiatry at Sinai Samaritan Medical Center and clinical assistant professor of psychiatry at the UW Medical School's Milwaukee clinical campus. "Most grow out of it, but 10% or 15% get caught up in it. That's where the family history begins to show."

Also, the onset of alcohol consumption relates to propensity toward abuse later in life.

"If you start drinking and smoking at an earlier age, it is more likely that you will become addicted or have problems," Longo explained. "This is a good reason for parents of teens to restrict access to tobacco and alcohol as much as possible. Kids who have a high tolerance early tend to progress to alcoholism."

These physicians hope their efforts will help inhibit the trend in alcoholism and binge drinking for which this state is known, so the next generation can say, "we are NOT number one."

SMS Physicians Go Into the Classroom to Fight Teen Smoking

by Steve Busalacchi, Director, News & Information

A human lung ravaged by cancer, computer-generated photos of how smoking accelerates aging and a strained conversation with a former cigarette advertising model who lost her voice box to smoking, are among segments from a television program being played in Wisconsin schools thanks to a joint effort by the State Medical Society of Wisconsin and the Wisconsin Education Council (WEAC).

The unique anti-smoking presentation includes physicians, teachers and a gripping video tape entitled "Smoking Truth or Dare." SMS sponsored the program, which was first broadcast on television stations statewide last Spring.

Hosted by Leeza Gibbons, the program got such rave reviews that SMS and WEAC, Wisconsin's largest teachers' organization, teamed-up to incorporate the video tape into classroom lessons throughout the state. SMS physicians teach part of WEAC's lesson plan and offer their real world medical experience of treating smoking-related diseases.

The first such presentation was held at Silverbrook Middle School in West Bend in December.

With smoking still prevalent among young people, SMS President John Riesch, MD, says, "It only makes sense for physicians and teachers to show kids how crazy it is to smoke. The lesson plan promises to drive home the very real consequences of inhaling this dangerous and addictive drug."

The American Cancer Society estimates that each day 120 Wisconsin children, averaging 14 years old, take their first puff of cigarette smoke. Half will become addicted smokers—and half of that group will die of diseases caused by smoking.

"We want to empower our youth to be tobacco free and we believe this program will do just that," said WEAC President Terry Craney.

Physicians interested in participating in the "Smoking Truth or Dare" program can contact Leslie Selby at 800-362-9080, ext. 230 or via e-mail at LESLIES@smswi.org.

Defining Addiction and Recognizing Treatment Options

By Marc Kennedy, Special to WMJ

"The simplest definition of addiction is that the patient continues to use a substance or engage in behavior in spite of adverse consequences," said Lance Longo, MD, Medical Director of Addiction Psychiatry at Sinai Samaritan Medical Center in Milwaukee. "Some people drink to relax, while others have a craving, a preoccupation. Instead of having a 1.5-ounce drink at the end of the day, they have five 5-ounce drinks. They end up drinking rather than dealing with their spouse or children. It starts to become an addiction when it begins to negatively affect marriage, family and work; the person gets a DUI; personal health starts to suffer. With gambling, there is debt; again, loss of time with the family, among other problems."

While addiction diagnosis and treatment mainly focuses on substance abuse—alcohol, tobacco, pharmaceuticals and narcotics—many experts consider other behaviors, such as gambling, as addictive disorders.

"There is ample evidence that the addiction model appropriately applies to gambling," said Michael Miller, MD, national secretary for the American Society of Addiction Medicine. "But the indication is not as strong for other types of social addictions, such as spending, sexual behavior, co-dependant relationships. Certainly there are some behavioral parallels. But generally addiction involves some genetic predisposition and physiological changes."

> *"How can a rational health care delivery system offer proper addiction treatment when the financial support for care has been cut by almost three-fourths?"*
>
> *Marc Galanter, MD*

Neurologically, according to Longo, addictive behaviors and substance addiction share a common trait.

"The dopamine release pathway," he said. "They share the release of dopamine in the brain. Whatever it is — alcohol, cocaine, gambling, sex — triggers the release of dopamine. It doesn't matter what the substance or behavior is, but rather the response of the brain to it, in releasing dopamine. However, there are drugs available to treat this."

Miller added that with the right therapy, patients can learn to modify their behavior to reduce the onset of addictive responses.

"We tend to use group psychotherapy to help them accept the existence of problems," he explained. "This helps them recognize that their life had become unmanageable, and that it was attributable to their behavior. We work on giving them options, in teaching basic coping skills."

Though there may be some similarities between addiction and thrill-seeking behavior — sky diving or mountain climbing — regarding risk-taking, Miller said it is "too much of a leap to say that there is an addiction. Some of the physiology can be compared. High risk-taking behavior can cause a release of adrenaline, just as cocaine does, but that doesn't mean there is addiction."

Miller added that adolescents who "get caught up in high stimuli" environments may also be experiencing similar types of adrenaline rush, for example in the popular "rave scene" which features all-night music and dancing.

"On the other hand, this may be a more healthy outlet" for the natural energy of young people, Miller said, presuming the focus is on music and dancing and not on alcohol and drugs. However, one of the sidelights of the rave scene, particularly in Europe, is the use of the drug MDMA, or Ecstasy, a psychoactive compound structurally similar to

both amphetamine and mescaline, which users say lowers inhibitions and promotes empathy.

Finding a healthy alternative to addictive behavior or substances is part of recovery, according to Longo.

"You need to find a way to occupy your time in the day," he said, "so many people switch to exercise, or religion, or going to Alcoholics Anonymous meetings. But you have to be careful. This can take on a life of its own. Though it may be more healthy, this alternative can serve the same deleterious purpose if it begins promoting negative consequences, such as keeping you away from your family."

The 12-Step approach of AA can work for any type of addiction, said Dean Whiteway, MD, internal medicine specialist at the Gundersen Clinic and Lutheran Hospital in La Crosse, and past president of the Wisconsin Chapter of the American Society of Addiction Medicine.

"There are 12-step groups for everything. The philosophy is the same. The first step is to recognize that you are powerless to control the behavior, though aspects of the individual steps vary depending on the type of substance or behavior. But that first step is the hardest. That's the one you have to do on your own."

For treating alcoholism, "nothing beats AA," Whiteway added. "I refer every alcoholic patient to AA. In fact, I suggest that physicians who have alcoholic patients attend open AA meetings. Unless you are a recovering alcoholic, you will not be allowed into a closed meeting. I take medical students to them, and they always appreciate it."

AA and other self-help programs for addictive behaviors may grow in importance as concern for the availability of coverage under managed care stipulations increases.

"The old idea of a 28-day rehab at $1,000 a day is a thing of the past," said Longo.

"Managed care will just not pay for it. The system is more cost-efficient, with a stay of around 2.7 days, with in-patient care reserved for medical necessity in the case of life threatening illness. The emphasis is building outpatient services. Though the resources are more limited, there is more variety. It depends on what the individual needs."

Longo added that it means physicians treating patients with addictions may have to hunt around for services to suit the needs of their patients, but that it is "worthwhile for doctors to find out what is available in the community."

Marc Galanter is worried that there is far too little of such service available due to recent cutbacks in reimbursement for addiction treatment.

"Such cutbacks often have denied us as physicians the opportunity to provide the treatment patients require," according to a position paper authored by Galanter, MD, FASAM, President Elect of the American Society for Addiction Medicine. "...from 1988 to 1997, the value of benefits in the contracts provided for addiction treatment by major employers has declined by 71%. This figure was derived by an independent research organization and is based on health benefits provided by 1,043 employers. The decline in general health care value over the same period was only 7%. How can a rational health care delivery system offer proper addiction treatment when the financial support for care has been cut by almost three-fourths?"

His presentation asserted that ASAM members who responded to a survey reported that managed care had a negatively affected detoxification (67%) and both inpatient treatment (86%) and outpatient care (67%).

"...it is no surprise that fully 79% of respondents concluded that managed care has had a negative impact on their practice of addiction medicine." Galanter added that in response to such trends, ASAM is collecting data on how cuts in coverage are negatively affecting patients who cannot receive adequate addiction treatment. ASAM plans to report the results of these studies to government and industry leaders to garner support for "efficient and effective treatment" of patients and outlining medical benefits therein.

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Assessing Smoke-free Workplaces in Wisconsin Municipal and County Government Buildings, 1997

Eric Aakko, Patrick Remington, MD, MPH, Jamie Dixon, and Liz Ford

ABSTRACT

Passive smoke has been shown to cause cancer and heart disease in humans. We surveyed all Wisconsin cities and villages in 1997 to determine their clean indoor air policies in government-owned buildings. By 1997, 62% of cities and villages and 100% of counties had enacted a clean indoor air ordinance or policy. Smoking is completely banned in 26% of all city and village buildings and 49% of county buildings in the state. This survey shows that an increasing proportion of government worksites in Wisconsin are enacting clean indoor air policies to protect their employees and the public from the health effects of passive smoke.

INTRODUCTION

The scientific evidence continues to expose the health hazards of secondhand or passive smoke.[1] The Environmental Protection Agency (EPA) has classified passive smoke as a known Group A carcinogen and nonsmokers subjected to passive smoke are exposed to nicotine, carbon monoxide, and other cancer causing agents.[2,3] Nonsmoking employees exposed to passive smoke at the worksite, but not at home, had significantly higher levels of nicotine metabolite in their bloodstream than nonsmoking employees with no work or home exposure to passive smoke.[4] Simple separation of smokers and nonsmokers within the same airspace does not eliminate the risks of nonsmokers to passive smoke.[5] Consequently, the National Institute of Occupational Safety and Health has concluded that all workplaces should be smoke-free.[6]

Local governments can play a leadership role in promoting optimal health in their communities. This can be accomplished by setting a community standard, and eliminating smoking in all government workplaces. Since 1995, through a contract with the National Cancer Institute, the Wisconsin Division of Health has surveyed all county and municipal governments annually to identify their clean indoor air policies. This report summarizes the results from the 1997 survey and highlights communities that have achieved the goal of providing a completely smoke-free environment for governmental employees and patrons.

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METHODS

Annually in 1995, 1996 and 1997, ASSIST staff sent a survey to 72 county and 583 city and village clerks in Wisconsin. The methods and results for 1995 and 1996 are described elsewhere.[8,9] In July of 1997, all county and municipal clerks were surveyed, with follow-up letters sent in August of 1997 to non-responders. Supplemental data from 1996 was used to complete the data for non-responding clerks in 1997. Consequently, the survey has a 99.2% response rate.

The survey asked several questions about tobacco control policy. If the county or municipality had a tobacco ordinance or policy, the clerk was asked to forward a copy with the completed survey. This report only describes the results of the clean indoor air questions. When the surveys and ordinances were returned, we classified them into three areas: 1) smoking is banned in all government-owned buildings; 2) smoking is banned in some government- owned buildings; and, 3) smoking is restricted to designated areas in government buildings (Table 1).

RESULTS

Cities and Villages: Of 583 municipalities, 578 (99%) completed the survey. By 1997, 356 of 578 (62%)

Table 1: Comparison of Clean Indoor Air Policies in Municipal and County Government Buildings, 1996 to 1997.

	Municipality		County	
	1996 (n = 567)	1997 (n = 578)	1996 (n = 72)	1997 (n = 72)
Has an ordinance/policy	239 (42%)	356 (62%)	63 (87%)	72 (100%)
Banned in all buildings	54 (9%)	149 (26%)	24 (33%)	35 (49%)
Banned in some buildings	27 (5%)	86 (15%)	24 (33%)	26 (36%)
Restricted to smoking areas	90 (16%)	117 (20%)	6 (8%)	11 (15%)
Unknown extent	68 (12%)	5 (1%)	9 (13%)	0 (0%)
No ordinance/policy	328(58%)	222 (38%)	9 (13%)	0 (0%)

municipalities reported having enacted a clean indoor air ordinance or policy; 149 of 578 (26%) banned smoking in all government-owned buildings; 86 (15%) banned smoking in some government-owned buildings; 117 (20%) restrict smoking to designated areas; and 5 (1%) were of unknown extent because they did not respond to either the 1996 or 1997 survey (Table 1).

Counties: 72 of 72 (100%) counties completed the survey. By 1997, 72 of 72 (100%) counties reported having enacted a clean indoor air ordinance or policy. As of 1997, smoking is completely banned in 35 of 72 (49%) county government-owned buildings; 26 (36%) banned smoking in some government-owned buildings; and 11 (15%) restrict smoking to designated areas (Table 1).

COMMENT

The 1997 survey shows steady progress toward the goal of a smoke-free environment for all of Wisconsin's public employees. By 1997, 50% of all county buildings and 26% of all city and village buildings have reported banning smoking entirely. This simple, low-cost health policy ensures that employees working in these buildings, as well as the general public, will not be exposed to environmental tobacco smoke. Health concerns are not the only reason for eliminating passive smoke in the workplace. An employer can directly save on cleaning and maintenance costs, reduced employee absenteeism, increased employee productivity, and reduced health care costs.[7]

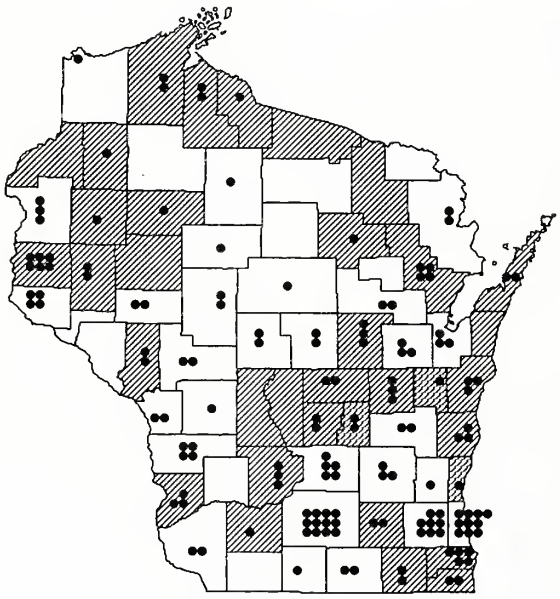
In a 1990 study conducted by the American Cancer Society, only 17% of municipalities and 52% of counties reported enacting any tobacco-related ordinances (Figure 2).[8] By 1995, this percentage had increased substantially, with 36% of municipalities and 86% of counties reporting some type of clean indoor air ordinance. By 1997, every county in Wisconsin and 62% of cities and villages reported enacting some type of clean indoor air policy or ordinance. This increase reflects the combined efforts of communities, including local ASSIST funded tobacco control coalitions, and local governments to improve their indoor air environments. A Wisconsin public opinion survey found that 56% of all workers, including 27% who smoke, support a complete ban on smoking in the workplace.[10]

Despite these trends, half of all Wisconsin counties permit smoking in some of their facilities and 15% still have designated smoking areas. Similarly, 36% of cities and villages have an ordinance or policy that permits smoking and 38% have no policy at all. The simple separation of smokers and nonsmokers does not prevent exposure to the harmful effects of passive smoke. These communities should revisit their current policies, and work toward a policy that provides all workers with a safe and smoke-free working environment.

Several limitations should be considered when interpreting this report. First, we only surveyed the 583 municipalities (cities and villages) in Wisconsin, and not the 1273 towns. These towns were not surveyed because they do not have "home rule powers." Cities and villages do have home rule powers that enable them to establish ordinances to determine their local affairs. Towns, on the other hand, are governed exclusively by the Wisconsin state statutes. Despite these differences, some towns, such as Minocqua, have banned smoking in all of their buildings. Perhaps towns should also be surveyed to determine their policies regarding clean indoor air.

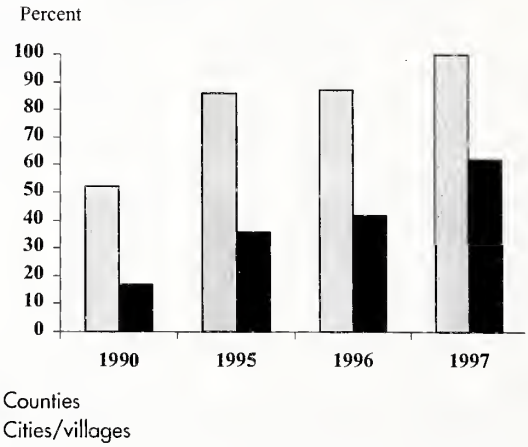
Another limitation is the standard we posed for being 100% smoke-free is quite stringent. County- or

Figure 1



Clean indoor air policies in counties, cities, and villages in Wisconsin, 1997. Counties that are shaded and cities and villages indicated with a dot have banned smoking in all government buildings.

Figure 2



Trends in the proportion of counties, cities, and villages that have enacted some type of clean indoor air ordinance, Wisconsin, 1990 to 1997. The data for 1990 include other tobacco policies.[8]

municipal-owned government buildings may essentially be smoke-free, but if their ordinance had exemptions (e.g., county jails, grandfather clauses, or nursing homes which allow smoking), then they did not qualify. These exemptions may be more pervasive in larger governments where more buildings are involved. Finally, the clerks completing the surveys may not have known the specific laws or policies regarding clean indoor air in their workplaces.

Communities in Wisconsin interested in enacting a smoke-free ordinance can work with a variety of individuals and organizations in the state. Wisconsin is one of 17 states in the nation funded by the National Cancer Institute to implement an eight year American Stop Smoking Intervention Study (Project ASSIST). Project ASSIST is a partnership effort between the Wisconsin Division of Health and the Wisconsin Division of the American Cancer Society. Other participants include the Tobacco-Free Wisconsin Coalition, local health departments, community based coalitions and non-profit organizations. ASSIST began as a demonstration project in 1991 and has evolved into a model for community action in public health. Nationally, there are over 220 ASSIST supported tobacco control coalitions (34 in Wisconsin), who represent more than 6,200 individuals and organizations. Now in its eighth year, ASSIST's tobacco control interventions are supporting broad environmental and social change.

In conclusion, a community with smoke-free workplaces, especially government workplaces, can help create a safe and healthy community. Therefore, local governments and communities are encouraged to reassess their clean indoor air policies. Local governments should continue to lead their communities in eliminating the risks to passive smoke exposure by promoting and providing smoke-free buildings and workplaces.

ACKNOWLEDGMENTS

This study was funded through a contract with the National Cancer Institute (NO1-CN15373, contract modification No. 18), Thomas Conway, Project Director. We sincerely thank all of the county, city, and village officials who have responded to our surveys each year.

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Table 2: Municipalities that have banned smoking in all government buildings, Wisconsin, 1997.

Abbotsford	Alma Center	Altoona
Antigo	Appleton	Ashland
Ashwaubenon	Amery	Baldwin
Baraboo	Bayfield	Bayside
Beaver Dam	Belleville	Berlin
Big Falls	Birchwood	Black Creek
Black Earth	Blue Mounds	Bonduel
Brillion	Brodhead	Brown Deer
Butler	Cecil	Cedarburg
Clintonville	Cobb	Columbus
Cottage Grove	Crivitz	Cuba City
Cumberland	De Pere	Deerfield
Delafield	Dresser	East Troy
Eau Claire	Edgerton	Elk Mound
Ellsworth	Elmwood Park	Evansville
Ferryville	Fond du Lac	Fox Point
Franklin	Frederic	Galesville
Gillett	Glendale	Glenwood City
Greendale	Hartland	Hazel Green
Hillsboro	Howard	Hudson
Hurley	Jefferson	Kennan
Kiel	Kimberly	Kohler
La Forge	Ladysmith	Lake Geneva
Loganville	Lohrville	Loyal
Lublin	Luck	Madison
Maiden Rock	Maple Bluff	Mazomanie
Melrose	Menomonee Falls	Menomonie
Middleton	Monona	Mount Horeb
Mount Sterling	Muskego	Neenah
Neshkoro	New Berlin	New Glarus
New London	New Richmond	Niagara
Nichols	North Freedom	Oak Creek
Oakfield	Oconomowoc	Oconto
Omro	Onalaska	Ontario
Pardeeville	Pittsville	Pleasant Prairie
Plover	Plum City	Portage
Poynette	Prairie du Chien	Princeton
Randolph	River Falls	Rochester
Sharon	Shawano	Sheboygan
Sister Bay	South Milwaukee	St. Francis
Star Prairie	Stratford	Sturtevant
Sturgeon Bay	Superior	Suring
Theresa	Tomah	Trempealeau
Twin Lakes	Verona	Viroqua
Wales	Washburn	Waterford
Watertown	West Bend	West Milwaukee
West Salem	Westfield	Whitelaw
Whiting	Wild Rose	Wilson
Wind Point	Winneconne	Wisconsin Dells
Wisconsin Rapids		

Table 3: Counties that have banned smoking in all government buildings, Wisconsin, 1997.

Adams	Ashland	Barron
Bayfield	Burnett	Calumet
Chippewa	Crawford	Door
Dunn	Forest	Green Lake
Iowa	Iron	Jefferson
Juneau	Kenosha	Kewaunee
Langlade	Manitowoc	Marquette
Oconto	Ozaukee	Racine
Rusk	St. Croix	Sauk
Sheboygan	Trempealeau	Vilas
Walworth	Washburn	Waupaca
Waushara	Winnebago	

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Relationship of Gender to Characteristics of Patients Referred to a Rural Wisconsin Addiction Treatment Unit

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ABSTRACT

The records of admissions to the inpatient unit of a Rural Wisconsin Addiction Treatment Unit were reviewed, in 1995, for the prior four years (January 1, 1990 through December 31, 1993) . After approval by the Institutional Review Board of the Marshfield Medical Research Foundation, the combined medical records were abstracted for presenting information related to social, psychological and medical components.

During the four years of observation, there were 821 unique admissions of which 555 (67.6%) were males with a mean age for males and females of 36.3 years. Gender was related to marital status with males more likely to be single and females more likely to be formerly married. Seventy-one (12.8%) of the males were permanently disabled but only 17 (6.4%) of the females. Manufacturing was an occupation for 101 (18.2%) of the males, and 23 (8.6%) of the females considered themselves primarily homemakers. Of the laboratory parameters, only red cell related parameters of MCV and MCH were related to gender. At the time of admission, 99 (37.2%) of the females and 152 (27.4%) of the males were under medical care. One hundred and thirty-two (49.6%) of the females had been a victim of physical assault compared to 89 (16.1%) of the males. A history of disorderly conduct was noted in 274 (49.5%) of the males and 84 (31.6%) of the females. During the period of withdrawal, high blood pressure was noted in 110 (19.9%) of males and 25 (9.4%) of the females. The RAATE estimate of medical and psychological parameters were also related to gender.

In this rural setting, the females admitted for treatment were significantly different from males. A substantially higher proportion had previously been victims of physical assault. In addition, females were more likely to have acknowledged psychological problems and to be under medical care. Treatment plans for persons with addiction need to address these issues and plan appropriate treatments.

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INTRODUCTION

Addiction is a chronic illness with biological, social and psychological components.[1] Appropriate treatment of this illness requires an understanding of these dimensions in a specific treatment population. Characteristics that the patients have on presentation are related to these underlying dimensions.

In particular, gender has been shown to be related to presenting parameters and outcome for patients with addiction in urban settings.[2,3,4] For example, a previous study has shown that, compared to addicted men, addicted women were younger, more likely to be separated, widowed or divorced and better educated.[5] In addition, such women had significantly higher prevalences of dysthymia, depression, mania, schizophrenia, phobic disorder, somatization disorder and panic disorder. An additional study of persons with severe mental illnesses showed affected women to have higher functioning scores and more psychiatric symptomatology.[6] This study emphasized that a pervasive issue was the extent of physical and sexual abuse that the women had experienced. Women have also been shown to have a different medical presentation than men.[7] In this study, it was noted that women more frequently utilized medical care for substance abuse issues than men.

Since the rural social structure in America is somewhat different from urban social structure, the characteristics of addicted persons in rural America may also be different. There may be a difference in availability of substances and usage or there may be different social risk factors and access to psychological help. Therefore, though the usage in rural areas may be similar to urban areas, the associated characteristics of addicted persons may be different.

Table 1. Gender By Martial Status

	Male		Female		Total	
	N	%*	N	%	N	%
Single	187	(33.7)	66	(24.8)	253	(30.8)
Married or Living Together	206	(37.1)	105	(39.5)	311	(37.9)
Divorced or Widowed	162	(29.2)	95	(35.7)	257	(31.1)
TOTAL	555	(100)	266	(100)	821	(100)

$X^2 = 7.44$; P = .02
*Percent is the percent of the column.

Table 2. Employment Status By Gender

	Male		Female		Total	
	N	%*	N	%	N	%
Working	263	(47.4)	87	(32.7)	350	(42.6)
Not Working	118	(21.3)	76	(28.6)	194	(23.6)
Disabled	71	(12.8)	17	(6.4)	88	(10.7)
Student	48	(8.6)	33	(12.4)	81	(9.9)
Retired	37	(6.7)	29	(10.9)	66	(8.0)
Homemaker	0	(0.0)	23	(8.6)	23	(2.7)
Other	18	(3.2)	1	(0.4)	19	(2.3)
TOTAL	555	(100)	266	(100)	821	(100)

$x^2 = 87.66$; P = <.01
*Percent is the percent of the column.

Table 3. Usual Occupation By Gender

	Male		Female		Total	
	N	%*	N	%	N	%
Service	72	(13.0)	68	(25.6)	140	(17.1)
Manufacturing	101	(18.2)	26	(9.8)	127	(15.5)
Student	43	(7.8)	26	(9.8)	69	(8.4)
"Odd Jobs"	40	(7.2)	18	(6.8)	58	(7.1)
Management	43	(7.8)	10	(3.8)	53	(6.5)
Construction	52	(9.4)	1	(0.4)	53	(6.5)
None	34	(6.1)	15	(5.6)	49	(6.0)
Other	170	(30.6)	102	(38.4)	272	(33.1)
TOTAL	555	(100)	266	(100)	821	(100)

$X^2 = 66.71$; P = <.01
*Percent is the percent of column.

The purpose of this study was to look at the characteristics, in several dimensions, of individuals who were admitted to a rural inpatient treatment center. This study is meant to be exploratory to see if biological, psychological and social parameters are related to gender. Hopefully, a better understanding of such characteristics can assist in treatment planning and perhaps improve outcomes.

METHODS

The Inpatient Unit of the Marshfield Alcohol and Drug Treatment Program is part of the medical complex that includes the Marshfield Clinic and St. Joseph's Hospital. The Marshfield Medical Complex is a rural referral center that potentially serves patients from throughout central and northern Wisconsin. A common staff, a single medical record, and a single mental health record for both institutions facilitates obtaining clinical data.

An abstraction form was developed for data collection and approved by the Institutional Review Board (IRB) of the Marshfield Medical Research Foundation. With IRB approval and appropriate methods for maintaining anonymity, the treatment and medical records of all patients who were admitted to the Inpatient Unit during the years 1990 to 1993 were reviewed during 1995. The abstracted data included information on drug screening, laboratory parameters, social features, psychological and personality diagnoses, and the last RAATE (Recovery Attitudes and Treatment Evaluation)[8] estimate of status before discharge. During this period of time, the types of laboratory studies and intake features were stable and the abstracted data reflected only issues that were routinely clinically assessed. In addition, questions regarding referral source and who was providing care at the time of admission, which were also routinely addressed, were abstracted. If an individual had more than a single treatment episode during this time, only the information collected during the first treatment was considered for analyses.

Information was maintained on a Statistical Program for the Social Sciences (SPSS) file and analysis was done by simple frequencies with chi-square tests of association (p = .05).[9]

Table 4. Presence of Abnormal Lab Values By Gender*

	Male		Female		Total		x^2	p
	N	%	N	%	N	%		
Albumin	38	(7.4)	20	(7.9)	58	(7.6)	.02	.89
Alkaline Phosphatase	106	(19.4)	50	(19.3)	156	(19.4)	.00	.96
Total Bilirubin	35	(6.4)	10	(3.8)	45	(5.6)	1.78	.18
Total Cholesterol	187	(36.2)	104	(41.4)	291	(37.4)	1.77	.18
GGT	167	(32.4)	74	(29.6)	241	(31.5)	.50	.48
AST	166	(30.4)	75	(28.8)	241	(29.9)	.14	.71
MCV	61	(11.2)	50	(18.9)	111	(13.7)	8.43	<.01
MCH	66	(12.1)	55	(20.8)	121	(15.0)	9.96	<.01
Hemoglobin	47	(8.6)	20	(7.6)	67	(8.3)	.13	.72
Platelet Count	68	(12.2)	33	(12.4)	101	(12.3)	<.01	.96
T4	50	(9.4)	34	(13.0)	84	(10.6)	2.04	.15

*The number and percent refer to the number of males, females or total group who had abnormalities for that variable.

RESULTS

During the four years of observation, there were 821 unique admissions of which 555 (67.6%) were men; the mean age for the entire group was 36.3 years. The peak age range for both males and females was age 30 to 39. Age and highest level of education were not related to gender.

Marital status was related to gender (chi-square = 7. p = .02 (Table 1)). One hundred and eighty seven (33.7%) males were single on admission but only 66 (24.8%) females were single. However, 95 (35.7%) females were previously married compared to 162 (92.2%) males.

Employment status (Table 2) and occupation (Table 3) were related to gender. Twenty-three (8.6%) of the females considered themselves primarily homemakers, whereas no males did. Seventy-one (12.8%) of the males and 17 (6.4%) of the females were considered permanently disabled. Manufacturing was the occupation for 101 (18.2%) of the males and 26 (9.8%) of the females.

Of the laboratory parameters examined (Table 4), only the MCV and MCH were related to gender. MCV was abnormal in 61 (11.2%) males and 50 (18.9%) females, whereas MCH was abnormal in 66 (12.1%) males and 55 (20.8%) females.

The specific referral sources of another hospital, an A.O.D.A. counselor, physician, judge or family were not related to gender. However, at the time of admission, females differed from males by who was providing care (Table 5). Physicians were providing care to 99 (37.2%) of the females and 152 (27.4%) of the males. Probation officers were involved with 66 (11.9%) males and 20 (7.5%) females. Psychologists were involved with 49 (18.4%) females and 47 (8.5%) males.

Psychological and social parameters varied between males and females (Table 6). One hundred thirty-two (49.6%) females and 89 (16.1%) males had been victims of physical violence. The number of females being treated for depression (55; 20.7%) was significantly different than the number of males (48; 8.7%). A history of prior arrests for disorderly conduct was noted in 274 (49.5%) males and 84 (31.6%) females. In addition, a prior arrest for driving while intoxicated (DWI) was noted for 254 (48%) of the males and 79 (29.7%) of the females. A diagnosis of a personality disorder and a prior history of sexual abuse were both more commonly noted in females.

During medical treatment for withdrawal (Table 7), high blood pressure was noted in 110 (19.9%) males and 25 (9.4%) of females. One hundred six (39.9%) females and 136 (24.5%) males received antibiotic treatment. The frequency of the specific diagnosis of

Table 5. Receiving Care From Another Provider By Gender*

	Male N	Male %	Female N	Female %	Total N	Total %	x^2	p
Another Hospital	46	(8.3)	23	(8.6)	69	(8.4)	.03	.87
AODA Counselor	117	(21.7)	48	(18.0)	165	(20.1)	1.07	.30
Physician	152	(27.4)	99	(37.2)	251	(30.6)	7.96	<.01
Probation Officer	66	(11.9)	20	(7.5)	86	(10.5)	3.90	.05
Psychology or Psychiatry	47	(8.5)	49	(18.4)	96	(11.7)	16.19	<.01

*The N and percent refer to the number of the males, females or total group for which that variable applies.

Table 6. Presence Of Behavioral Features By Gender*

	Male N	Male %	Female N	Female %	Total N	Total %	x^2	p
ADHD	32	(5.8)	9	(3.4)	41	(5.0)	2.3	1.13
Victim	89	(16.1)	132	(49.6)	221	(27.0)	98.7	<.01
Depression On Treatment	48	(8.7)	55	(20.7)	103	(12.6)	22.19	<.01
Disorderly Conduct	274	(49.5)	84	(31.6)	358	(43.7)	23.81	<.01
DWI	254	(45.8)	79	(29.7)	333	(40.6)	19.87	<.01
Drug Conviction	43	(7.8)	18	(6.8)	61	(7.4)	.26	.61
Personality Disorder	173	(31.2)	118	(44.4)	291	(35.5)	13.35	<.01
Sexual Abuse	40	(7.2)	99	(37.2)	139	(17.0)	107.9	<.01

The N and percent refer to the number of males, females and total who were noted to have that behavioral feature.

alcohol or other substance abuse was not different between males and females, although the initial urine screen (Table 8) showed cannabinoids more often in males (16. 2%) than in females (6.9%).

The RAATE estimate was different by gender for the third (medical) and fourth (psychological) parameters (Table 9). Estimations of more severe medical problems (the worst two categories) were higher for males whereas the estimation of more severe psychological problems were higher for females.

DISCUSSION

This study was based primarily on the extensive clinical experience of a single inpatient addiction treatment unit over a four-year period. The findings of this study are limited by the fact that the treatment population could be unique for the area. Furthermore, this study was designed to evaluate clinical parameters that were routinely obtained. It is exploratory in nature, and because of the large numbers of subjects and comparisons, small, clinically insignificant differences may reach statistical significance. However, the study does evaluate all subjects that were seen during this period and does not have any treatment exclusions.

In this study, we found that females do differ from males at the time of their initial presentation and during early treatment in a rural inpatient addiction treatment unit. Although age and highest level of education were not related to gender, there were several differences in other characteristics.

Males were more likely to be single (never married), whereas females were more likely to be divorced or widowed. Recognizing that a stable family structure is important to addiction recovery, this suggests that females may be at a disadvantage since they are more likely to have had a prior unsatisfactory relationship.

Table 7. Physiologic Parameters Or Treatment By Gender*

	Male N	%	Female N	%	Total N	%	x^2	p
Elevated Blood Pressure	110	(19.9)	25	(9.4)	135	(16.5)	15.51	<.01
Enlarged Liver	133	(24.0)	50	(18.8)	183	(22.3)	2.88	.09
Intoxication	69	(12.4)	28	(10.5)	97	(11.8)	.65	.42
Tremor	92	(16.6)	31	(11.6)	123	(15.0)	3.59	.06
Received Antibiotics	136	(24.5)	106	(39.9)	242	(29.5)	19.85	<.01
Hallucinations Noted	33	(6.0)	13	(4.9)	46	(5.6)	.40	.53

*The N and percent refer to the number and percent of males, females and total who were noted to have that parameter.

Table 8. Urine Toxicology by Gender*

	Male N	%	Female N	%	Total N	%	x^2	p
Alcohol	143	(26.3)	58	(22.1)	201	(24.9)	1.65	.20
Amphetamines	1	(0.2)	2	(0.8)	3	(0.4)	1.47	.23
Cannabinoids	88	(16.2)	18	(6.9)	106	(13.2)	14.80	<.01
Cocaine	28	(5.2)	12	(4.6)	40	(5.0)	.12	.73

*The N and percent refer to the number and percent of males, females and total for which that substance was positive on initial urine toxicology.

Stable employment and a fulfilling occupation also help predict continued sobriety.[10] Males were more likely to be working or disabled, whereas females were more likely to be retired or consider themselves homemakers and not part of the work force. Females were also more likely to be in a service occupation. At the time of admission, females were more likely to be under the care of a physician or receiving psychological help. Similarly, females were more likely to have a diagnosis of depression or personality disorder. Although sexual abuse was seen in both males and females, it was clearly more frequently noted in females who were also more likely to be victims of interpersonal violence. Other studies have also shown that abuse is a significant problem for females with addiction.[11] Similarly, it has been demonstrated that women who were victims of violence were more likely to use multiple substances.[12] On the other hand, in another study of victimization and post-traumatic stress disorders, there was no significant gender differences in victims of assault.[13]

The difference in laboratory parameters could be explained by the fact that females in the general population are more likely to have microcytic red cell indices. In addition, males in the general population are more likely to have an elevated blood pressure. This study does not confirm the finding of other studies,[14,15] that women have more vulnerability to liver disease.

Although alcohol was clearly the predominant agent found in the admission urine toxicology, it is not too surprising that substantial amounts of cocaine and cannabinoids were also noted in this rural sample. Males were more likely to have the cannabinoid than females. In an office-based rural practice, the prevalence of mental disorders, including at least alcohol abuse and dependence, was as high as in an urban office practice.[16]

Successful treatment of addiction requires addressing the social, psychological and medical dimensions of patients. In this sample of rural inpatients, we found significant differences between males and females.

Table 9. RAATE In Worst Two Categories By Gender*

	Male N	%	Female N	%	Total N	%	x^2	p
Resistance	115	(25.7)	59	(26.1)	174	(25.8)	.79	.91
Acceptance	214	(47.8)	100	(44.3)	314	(46.6)	.93	.82
Medical	21	(4.7)	6	(2.7)	27	(4.0)	13.45	<.01
Psychological	91	(20.3)	70	(31.1)	161	(23.9)	12.90	<.01
Social Problems	36	(81.7)	175	(78.1)	541	(80.1)	4.04	.26

*The N and percent refer to the number and percentage of males, females and total who were rated either a 4 or a 5. The data on RAATE was available for 674 individuals.

Understanding and addressing such differences is potentially important in developing successful treatment plans and hopefully optimizing outcomes.

This study underscores that in a rural treatment center, significant psychological and social issues are found and are significantly affected by gender. The relationships of these parameters to the expression of addiction and outcome from subsequent treatment needs to be further explored.

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An Ecologic Study of Cirrhosis Mortality and Alcohol Consumption in the U.S.

Mari Gasiorowicz, MA, and Patrick Remington, MD, MPH

ABSTRACT

Liver cirrhosis is responsible for 350 deaths in Wisconsin each year. A number of ecologic studies indicate that alcohol consumption and cirrhosis mortality are highly correlated.

This ecologic cross-sectional study uses data for the 50 US states. Various measures of alcohol consumption and Hepatitis B and C serve as the exposure variables. Liver cirrhosis mortality is the outcome measure.

Wisconsin has the largest percentage of drinkers and of binge drinkers and is in the top five states for apparent per capita alcohol consumption and for the percentage of chronic heavy drinkers. Yet Wisconsin's mortality rate during 1990 to 1994 ranks 43 among US states.

The most plausible explanation for this apparent anomaly is that alcohol consumption in Wisconsin is distributed over a larger share of the population. Overall, consumption *per drinker* in Wisconsin is lower than in other high consumption states.

INTRODUCTION

Liver cirrhosis is responsible for 25,000 deaths in the United States and 350 deaths in Wisconsin each year.[1] In 1990, cirrhosis was the ninth leading cause of death in the United States.[2] Forty percent to 80% of liver cirrhosis is attributable to chronic heavy alcohol consumption with 65% as a best point estimate. Approximately 25% of cirrhosis is attributable to Hepatitis B and C.[2]

The purpose of this study is to compare and contrast several state-level measures of alcohol consumption with state specific cirrhosis mortality data. Our primary hypothesis is that states with higher rates of chronic heavy drinking will have higher rates of liver cirrhosis mortality.

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METHODS

This is an ecologic cross-sectional study. Ecologic studies compare the morbidity or mortality experience from a given disease in different populations, in this case, residents of the 50 US states.[3] Ecologic studies provide clues to etiologic hypotheses, but are not able to test hypotheses.

The exposures considered were various measures of alcohol consumption and Hepatitis B and C morbidity rates. Age adjusted liver cirrhosis (International Classification of Diseases 571) death rates per 100,000 population, standardized to the 1990 US population, for the period 1990 to 1994 serve as the outcome measure. Data by state were obtained using CDC WONDER, the Centers for Disease Control and Prevention Wide-ranging On-line Data for Epidemiology Research.[1]

In order to account for the fact that cirrhosis typically results from at least 15 years of chronic heavy alcohol abuse,[2] we obtained exposure data that preceded the 1990 to 1994 period by 15 years. Thus, we used per capita consumption data from 1975. However, the earliest data on self- reported alcohol use, with more than 40 states participating, was 1990. While per capita alcohol consumption in the United States declined by 9% from 1975 to 1990[4], the relative ranking among states of per capita alcohol consumption remained nearly constant (r=.96).[1]

We reviewed the following data to assess exposure to alcohol consumption: apparent per capita consumption in gallons of ethanol in 1975 and 1990 (assessed through sales, receipt, and taxation data);[4] percentage of current drinkers in 1990, as measured by the Behavioral Risk Factor Survey, (a telephone

Table 1: Measures of Exposure and Cirrhosis Deaths for US States and for Wisconsin

Indicator	US States				Wisconsin		
	Minimum	Median	Maximum	Correlation with Cirrhosis all ages	Rate	RR to US Median	Rank
1. Apparent per capita consumption, 1975 (gallons ethanol)	1.6	2.7	6.8	0.55	3.4	1.27	5
2. Apparent per capita consumption, 1990 (gallons ethanol)	1.4	2.5	4.8	0.55	3.4	1.25	4
3. Percentage of adults who drink, 1990 (%)	29.9	51.4	69.4	0.05	69.4	1.35	1
4. Average consumption per drinker, 1990 (gallons ethanol)	3.7	4.7	6.6	0.31	4.4	0.94	32
5. Percentage of chronic heavy drinkers, 1990 (%)	1.4	3.2	6.0	0.24	5.0	1.56	5
6. Percentage of binge drinkers, 1 990 (%)	6.3	15.3	26.8	-0.01	26.8	1.75	1
7. Hepatitis B and C morbidity, 1991 (cases/100,000)	1.1	7.0	31.4	0.41	11.7	1.68	9
8. Age-adjusted cirrhosis mortality all ages, 1990-94 (deaths/100,000)	5.3	9.0	16.8	- -	7.1	0.79	43

Data sources, (number of states):
1, 2. Reference #4, (50)
3, 5, 6. BRFS: Reference #5, (45); Chronic heavy drinking: 60 or more drinks in the past month; Binge drinking: five or more drinks on one occasion in the past month
4. Product of data sources 3 and 4 (45)
7. Reference #9, (50)
8. Reference #1, (50)

survey of representative households in the United States);[5] average alcohol consumption per drinker: the product of apparent per capita consumption and percentage of drinkers in 1990; the percentage of chronic heavy drinkers in 1990 (defined as 60 or more drinks in the past 30 days);[4] and binge drinkers in 1990 (defined as 5 or more drinks on one or more occasions in the past 30 days).[5]

To assess the contribution of Hepatitis B and C to cirrhosis mortality, we correlated 1991 state-specific morbidity rates with state rates of cirrhosis.

The following summary statistics are provided: minimums, medians and maximums for each measure of exposure; correlation coefficients for each measure of exposure with cirrhosis mortality; and Wisconsin's rate, rate relative to the US median, and rank among states.

RESULTS

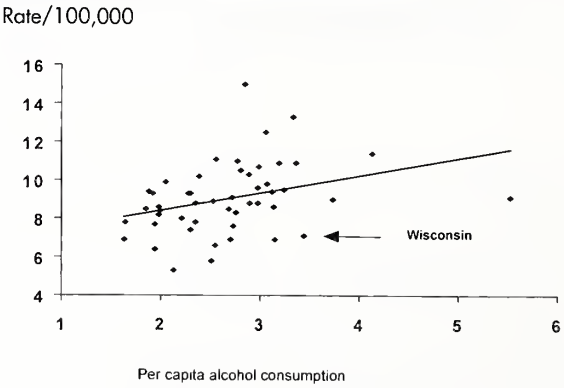
Results are summarized in Table 1. Apparent per capita alcohol consumption is the measure of alcohol consumption that correlates most closely with cirrhosis mortality (r=.55). These two indicators are plotted in Figure 1. Other measures of alcohol consumption are less well correlated -- ranging from r=.31 for average consumption per drinker to r=-.01 for percentage of binge drinkers. Hepatitis B and C morbidity is relatively well-correlated with cirrhosis mortality (r=.41).

Wisconsin had the highest percentage of drinkers and of binge drinkers and was in the top five states

for apparent per capita alcohol consumption and for chronic heavy drinking. Yet, Wisconsin's liver cirrhosis mortality rate during 1990 to 1994 ranks 43 among US states. Wisconsin is the only state to appear in the top quintile for alcohol exposure and the bottom quintile for liver cirrhosis mortality. As Table 1 shows, Wisconsin's apparent per capita consumption, chronic heavy, and binge drinking all place Wisconsin among the top five states for alcohol consumption. In addition, Wisconsin has the highest percentage of drinkers of all US states – 69% -- compared to a US median of 51%. As a result, the alcohol consumed is distributed over a larger percentage of the population. Wisconsin has a relatively low rate of consumption per drinker giving the state a rank of 32.

Wisconsin ranks ninth in Hepatitis B and C morbidity (rate of 11.7 per 100,000 population compared to a US median of 7.0).

Figure 1



Per capita alcohol consumption in 1975 (gallons of ethanol per person) and age adjusted cirrhosis mortality 1990 to 1994, US States

Regression equation: $y = 0.91x + 6.6$

DISCUSSION

The risk of cirrhosis increases with chronic heavy drinking of 6 to 12 or more drinks daily over a period of 15 to 20 years for men and 4 to 8 or more drinks daily for over 10 to 15 years for women.[7] Surprisingly, the measure of chronic heavy drinking on the Behavioral Risk Factor Survey is of little predictive value for cirrhosis mortality (r=.24). This may be explained by the fact that chronic heavy drinking is defined on the Survey as an average of only two or more drinks per day (60 or more drinks in the past 30 days). Although survey respondents consistently under-report their own alcohol consumption,[8] the measure on the Behavioral Risk Factor Survey reflects a larger group than those whose drinking pattern puts them at risk for severe liver damage.

Wisconsin leads the nation in alcohol consumption, but has one of the lowest death rates from cirrhosis. This anomaly contradicts a number of ecologic studies that have demonstrated that per capita alcohol consumption and cirrhosis mortality are highly correlated.[6]

The most plausible explanation for Wisconsin's low cirrhosis mortality despite high levels of alcohol consumption is that consumption is distributed over a larger share of the population. The fact that in the US as a whole, 50% of alcohol is consumed by the 10% of heaviest drinkers,[7] probably does not apply to Wisconsin. Overall consumption *per drinker* in Wisconsin is lower than in other high consumption states. This appears to be true despite high rates of chronic heavy and binge drinking as measured on the Behavioral Risk Factor Survey.

Nationally, approximately 25% of cirrhosis is attributable to Hepatitis B and C[2] which may help explain the relatively strong correlation (r=.41) between these diseases and cirrhosis mortality. The primary risk factors for Hepatitis B are injection drug use and sexual contact; exposure to blood products is the primary risk factor for Hepatitis C. Given that Wisconsin's Hepatitis morbidity rate is high, one would expect a higher cirrhosis mortality rate than is observed. Thus Hepatitis does not help explain the low cirrhosis rate.

This study is subject to several limitations and several factors may account for the finding that rates of alcohol use are not highly correlated with cirrhosis mortality. First, as in any ecologic study, there may be characteristics that vary between states that we have not measured. For example, states may have different rates of treatment for alcoholism, early detection, and treatment of liver disease. Unfortunately, data assessing each aspect of detection and treatment are difficult to obtain and inconsistent across states.

In addition, our measures of alcohol consumption have several limitations. For example, alcohol may be consumed disproportionately by out-of-state residents, through tourism. This would artificially increase apparent alcohol consumption for the sales data but would not affect the data reported by residents in the Behavioral Risk Factor Survey. Because 1990 was the

first year that Behavior Risk Factor Survey data regarding drinking patterns were collected from more than 40 states, we were not able to assess exposure measures with the approximately 15 year time lag that occurs between the onset of chronic heavy drinking and development of cirrhosis. Also, the Behavior Risk Factor Survey, the source for several of the measures of alcohol exposure is a telephone survey which is likely to miss chronic alcoholics, either because they decline to participate, or because they are homeless or institutionalized.[6] Finally, there may be variability in data collection and reporting across states.

CONCLUSION

Given the large body of research indicating that chronic heavy drinking is the primary risk factor for cirrhosis, the finding that chronic heavy drinking as measured on the Behavior Risk Factor Survey is minimally correlated with cirrhosis mortality (r=.24) merits further study. The percentage of survey respondents reporting a greater number of drinks per month, such as 150, may yield a higher correlation with per capita alcohol consumption.

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A Quadriplegic Man With Hypothermia and Thrombocytopenia

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Hypothermia is a particular risk for patients with impaired thermoregulatory mechanisms. The patient presented below developed thrombocytopenia with hypothermia, an effect seldom noted in the medical literature.

CASE

A 25-year-old man with complete C4-5 quadriplegia due to a fall five years previously was brought by his family for medical attention to hypothermia, mental slowness and lethargy for several days. His mother had measured his oral temperature and found it to be 91 degrees F. One year prior to this visit he had been admitted to another hospital with similar mental status changes, thrombocytopenia, hypothermia (30 degrees C) and pancreatitis. There was no family history of bleeding disorders. He rarely consumed alcohol and did not use illicit drugs. Baclofen was his only medication, and he had taken it for several years. He lived with his family and worked as a recreational therapist. He had modest daily cold exposure in commuting to work. His home temperature was kept at 71degrees F in daytime and 66 degrees at night. The average outside temperature over the five days preceding the visit was 25 degrees F with an average wind speed of 13 miles per hour.[1]

The examination was notable for his temperature of 32.8 degrees C, blood pressure 130/64 mm Hg, and pulse 68 beats per minute. He was alert and fully oriented but answered questions slowly. No hepatosplenomegaly, lymphadenopathy, or cutaneous abnormalities were found. Hematologic studies included a platelet count of 59,000/cubic mm, white blood cell count of 3900/cubic mm, and hemoglobin of 13.5 gm/dl. Serum potassium was 4.2 mmol/L and glucose 85 mg/dl. Further studies were non-contributory and included peripheral smear morphologic examination, DIC screen (antithrombin 111 activity, fibrinogen, d-dimer, fibrin split products), thyroid studies, antinuclear antibody screen, rheumatoid factor, sedimentation rate, direct Coombs, platelet associated IgG and IgA, amylase, lipase, and assays of factors VIII, IX, XI, and XII. Blood and urine cultures were negative. The chest radiograph was normal. The ECG showed sinus bradycardia and first degree AV block. No J waves were seen.

Neither infection nor bleeding was found. The hypothermia and thrombocytopenia resolved with passive re-warming with heating blankets and warmed intravenous fluids. His platelet count rose steadily and was 122,000/cubic mm on hospital day four. Hemoglobin decreased to 11.6 gm/dl with hydration.

DISCUSSION

Thrombocytopenia in association with hypothermia was first noted 60 years ago but its prevalence remains to be defined.[2] Chan and associates found thrombocytopenia in only 3 of 75 (4%) consecutive hypothermic patients admitted to their hospital over a four-year period.[3] However, thrombocytopenia was observed in 17 patients undergoing induced hypothermia and is probably more common than the literature would suggest.[4-6]

The patient's hypothermia and thrombocytopenia may have occurred as a result of the combination of cold exposure during transport to his job and his impaired ability to make appropriate physiologic compensations. Patients with cervical spinal cord injuries are susceptible to hypothermia because of the loss of the ability to shiver, a major thermo-regulating mechanism.[5,7] Normal cutaneous cold sensation is usually impaired in much of the body surface of quadriplegics, but central thermo-regulation utilizing blood temperature is not. Since they cannot clothe themselves they are very dependent on their assistant's

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perception of their clothing needs and adequacy. Hypothermia may be discovered more readily during the intense observation period associated with the care of acute cord injury than in community dwelling quadriplegics. Disorders affecting central thermoregulation have caused hypothermia in neonates and in adult patients with multiple sclerosis.[5,8-9]

In this patient's management it was especially important to consider sepsis, disseminated intravascular coagulation, platelet disorders, drugs, alcohol, or prescription medications among the many causes of thrombocytopenia. Patients are at increased risk of spontaneous bleeding below 50,000/cubic mm and for spontaneous intracranial hemorrhage below 20,000/cubic mm.

Hypothermia-induced thrombocytopenia is believed to result from hepatic sequestration of platelets and has been demonstrated in animal studies.[10] Temperatures less than 37 degrees C diminish the inhibitory action of prostacyclin (PG12) on in vitro platelet aggregation, synthesis, degradation and potency.[11] These changes could predispose patients to thrombosis, ischemia, or both and may have been the etiology of the patient's pancreatitis in his first hypothermia admission. Thrombocytopenia associated with hypothermia has been reported in the elderly, those with impaired thermoregulation, neonates, those undergoing cardiopulmonary bypass and alcoholics.[3,12-15]

CONCLUSION

It is important for clinicians to be aware of this uncommonly reported accompaniment of hypothermia and of the difficulties which quadriplegics may have with thermoregulation. Thrombocytopenia can result in life-threatening hemorrhage, but if caused directly by hypothermia it usually resolves with rewarming.

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The Prevalence of Alcohol Abuse and Dependence in Two Geographically Distinct Regions in Michigan: An UPRNet Study

Robert S. Steele, MD, John W. Sesney, PhD, and Nancy E. Kreher, MEd

ABSTRACT

Objective. No definitive studies have been done to determine the frequency of alcohol dependence and abuse in selected sites in Michigan. Because the Upper Peninsula is geographically, economically, and culturally distinct from Lower Michigan there may be an increased prevalence of alcoholism compared to other parts of the state.

Methods. This study compared the responses of 292 Upper Peninsula residents to the responses of 225 lower peninsula residents in the Kalamazoo area on a questionnaire regarding alcohol consumption and health habits. The Revised Health Screening Survey, which has shown adequate validity and reliability for detecting alcohol dependence and abuse, was administered. In the Upper Peninsula each of 12 family practice clinics belonging to UPRNet, a rural primary care research network, were asked to randomly recruit 24 patients to complete the questionnaires.

Results. Results showed that the percentage of alcohol dependent subjects in the three Kalamazoo clinics was 16%, while the overall percentage for all UP clinics was 12%. Chi-square analysis indicated no significant differences between the samples.

Conclusions. The widely held belief that people who live in the Upper Peninsula of Michigan have a higher rate of alcohol dependence and abuse than people in other parts of the state was not found to be true in this primary care outpatient population.

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INTRODUCTION AND BACKGROUND

Problems associated with alcohol consumption continue to exact great personal and financial costs throughout the world. In the United States alone, alcohol use is involved in nearly 100,000 deaths annually and plays a major role in numerous medical and social problems, and it exacts an additional cost on our society of more than $116 billion per year from absenteeism, property damage, medical care, and other services. The national prevalence of alcoholism has been reported to be between 10% to 15%, making alcohol abuse and dependence the major medical problem in health care, one which is often hard to diagnose and difficult to treat.[1]

In Michigan, some studies have been done quantifying alcohol use in urban, suburban and rural areas,[2] but no prevalence studies have been done to determine the prevalence of alcohol abuse or dependence in specific geographic sites. Alcohol use needs to be studied within the culture in which it is used to better understand pathologic patterns of consumption.[3] It is widely assumed that people in the Upper Peninsula drink far more than people in other areas of Michigan. The Upper Peninsula is a geographically, culturally and economically distinct area of Michigan.

Screening for alcohol dependence and abuse in the primary care setting is an active area of research, and instruments such as the CAGE questionnaire,[4] the Short Michigan Alcohol Screening Test (SMAST-13),[5] and the Revised Health Screening Survey (RHSS)[6] have been validated in primary care populations. The RHSS is a new, brief instrument which is self-administered and is slightly more sensitive and specific than other brief screening methods. For determining prevalence in larger sample populations, it is less costly and less labor-intensive than administering a "gold standard" instrument such as the Diagnostic Interview Schedule (DIE) which requires an interviewer.[7] Studies using this screening test have found a prevalence ranging from 9% to 33% in different areas of

the United States.[8-14]

In addition to determining the prevalence of alcohol abuse and dependence as defined by DSM-III-R criteria, this study examines various aspects of the lives and identities of the target populations and attempts to correlate responses with alcohol tolerance and abuse. A review of the literature stimulates closer examination of ethnic identity,[15] place and longevity of residence,[3] urban vs. rural residence and degree of isolation,[16] marital status, occupation, level of education, school performance,[17] attitudes toward education, self-esteem,[18] and locale of alcohol consumption and peer group influences.[19] Other factors that may help characterize the person who may be at risk for alcohol abuse include family alcohol use, religious preference and importance of religion,[20] and age at which alcohol consumption began.

The purpose of this study was to compare the prevalence of alcohol dependence and abuse in two geographically diverse regions of Michigan. The authors are testing the widely held belief that rates of alcohol dependence and abuse are higher in the Upper Peninsula than in the Lower Peninsula of Michigan.

METHODS

Twelve clinics located in the rural Upper Peninsula collected data that were compared to data collected in three clinics in the more suburban and urban region around Kalamazoo, Michigan. The Upper Peninsula clinics are a part of the Upper Peninsula Research Network (UPRNet), a primary care research group that is linked by a Macintosh computer network.

The pilot study for this project was done at a rural Upper Peninsula site by a second year medical student. Thirty-five questionnaires were given randomly to patients over a one-month period. Questionnaire results were reviewed for clarity and appropriate revisions were made.

QUESTIONNAIRE

Demographic information requested included age, ethnicity, religion, level of education and length of time living in current region. Questions from the Health Habits Survey and the CAGE questions were integrated with questions about alcohol consumption and drinking habits developed by the authors. Each question had five Likert-type responses representing a range. The alcohol-related questions asked how many days a week have you been drinking, and on a day when you have had beer, wine or other alcohol to drink (all separate), how many glasses or drinks have you had?

The questionnaires were randomly administered to 24 patients in each UPRNet clinic including four males and four females in each of three age ranges 21 to 40, 41 to 60, 61 and older. The patients were asked to read and sign an informed consent form and asked to complete the questionnaire anonymously, sealing it in an envelope. The practice coordinator, trained practice nurses, or research assistant collected the sealed envelope and answered any questions.

In the Upper Peninsula study sites, the researchers administered the questionnaire to 292 patients in 12 rural health clinics. All of these clinics are located in small towns or very rural communities and each of them serves a rural population. The practice coordinators at each site entered the responses in a FileMaker II data base and then electronically transmitted it to the UPRNet administrative office in Escanaba. After the data base was sent, the questionnaires were mailed to the Escanaba office. When the questionnaires arrived in Escanaba, a research assistant checked them for accuracy and completeness.

Even though the seven-page questionnaire was field tested and numerous written prompts were included in the body of the questionnaire, the investigators were concerned about the number of incomplete questionnaires. Therefore, each questionnaire was carefully examined and scored. For a questionnaire to be considered complete, every item must have been answered. If an item was not completed the error was noted, but the data in the rest of the questionnaire were included in the results. If any question concerning alcohol was not answered, the questionnaire was deleted from the data analysis. In the Kalamazoo clinics, 63 out of 225 questionnaires or 28% were considered incomplete and 18 questionnaires were deleted. In the Upper Peninsula sites, 73 out of 292 questionnaires or 25% were considered incomplete and 40 questionnaires were deleted.

The questionnaire was administered to another 252 patients in three clinics near Kalamazoo. In the Kalamazoo area sites, 84 patients per clinic were randomly recruited with 14 males and 14 females in the age ranges specified. Two of the clinics in Kalamazoo are large suburban practices with a mix of suburban and rural patients. The other is a large urban clinic,

Table 1. Comparison of ETOH Dependence in 12 UPRNet Clinics and 3 Kalamazoo Clinics

	Upper Peninsula	Kalamazoo
ETOH Dependent	35 (13%)	36 (16%)
ETOH Non-Dependent	257	189

Chi square = 1.728; p = .1887

serving an urban population. At the Kalamazoo area sites, the research assistant administered the questionnaires or assigned a designated person in the clinic to administer the questionnaire. Completed questionnaires were mailed to Escanaba for data entry by the research assistant. No electronically transmitted data bases were sent.

RESULTS

Table 1 indicates that 35 out of 292 patients or 12% of the Upper Peninsula population was alcohol dependent compared to 36 out of 225 or 16% of the Kalamazoo sample. A Chi-square analysis was done to compare the differences in alcohol dependence between the UPRNet sample and the Kalamazoo sample which resulted in chi-square value of 1.73 which was not significant. After the data were entered the questionnaires were scored for alcohol dependence or abuse. The patient was considered alcohol dependent if they answered "yes" to two or more of the four CAGE questions embedded in the questionnaire, or if the patient admitted to 20 or more alcoholic drinks per week during the past three months.

There were no significant differences in the percentages of patients at each of the three Kalamazoo clinics who were alcohol dependent. The percentage of alcohol dependence between the three clinics was compared by chi-square analysis which was not significant. At the urban clinic, 12% of the patients surveyed were alcohol dependent, while the percentages at the two suburban clinics were 15% and 19%. The patient populations at the three clinics were similar, although the suburban clinics served a higher proportion of rural patients than did the urban clinic.

The alcohol dependent groups from each region did not differ in terms of mean age (47.2) and educational level (12.5). There were 26 male and 10 female dependent people in the Kalamazoo sample and 20 male and 15 female dependent people in the Upper Peninsula group. The percentage of alcohol dependence between men and women was compared by chi-square analysis which was not significant.

Age of onset of drinking is thought to be a risk factor for alcohol dependence. It appears that the lack of a significant difference in abuse and dependence in the two populations is reflected in the lack of a significant difference in age of onset of drinking. Chi square analysis between Kalamazoo not dependent and UP not dependent was not significant.

Patients enrolled in the study were divided into three distinct age groups: 21 to 40, 41 to 60, and 61and older. There were no significant differences in the ages of the alcohol dependent patients in the Upper Peninsula and Kalamazoo samples.

The questionnaire asked respondents to describe the area where they live: large city, small town, suburb, or a rural/remote area. There was a significant difference in the two populations in their descriptions of where they live (p= .0001). The Upper Peninsula sample was much more likely to reside in a rural area.

DISCUSSION

This study was undertaken to test the widely held assumption that people who live in the remote, rural Upper Peninsula of Michigan drink more heavily and abuse alcohol more than people in other parts of the country. Having heard repeatedly that citizens of the Upper Peninsula "drink excessively", the authors were surprised to learn that, with this study population, citizens of the lower peninsula reported more heavy drinking and alcohol dependence though the difference was not statistically significant.

The study was done in an office setting, thus, the population may be skewed away from those who drink heavily. A study such as this would more accurately test the hypothesis if it were a population-based study. However, these data are useful in describing alcohol consumption among people who attend family practice clinics.

One of the problems inherent in a questionnaire study such as this is how to deal with incompletely filled out questionnaires. Due to anonymity that was promised to the study subjects, we were not able to check the questionnaires for completeness at the time they were returned to the receptionists. A major lesson from this study was the necessity for brief and succinct survey instruments.

Although the percentage of alcohol abusing and dependent subjects in the Upper Peninsula clinics was lower than that in the Kalamazoo clinics, the percentage of abusing and dependent subjects in both clinics was within the range of the national statistic, which is between 10% and 15%.[1] The data from the study shows that drinking behavior in both regions is typical of that in the general population.

Previous literature shows that the importance of religion in a person's life and a person's ethnicity may influence how much alcohol they consume.[21] This study showed no significant differences between the alcohol dependent and non-dependent groups in reported importance of religion.

The authors thought that differences in alcohol consumption between ethnic groups could account for the long held assumption that people in the Upper Peninsula drink more than those in other parts of the state. But the data showed no significant differences in numbers of alcohol dependent people among the ethnic groups included in the study. The results of this study refute the widely held belief that citizens of Michigan's Upper Peninsula drink more than others. A population based study comparing two geographically distinct Michigan populations is required to confirm these findings.

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Diabetic Screening Pilot Project: A Community Affair

by Veronica Drake, Diane Schallert, RN, MS, CPHQ, Joseph Blustein, MD, and Jay A. Gold, MD, JD, MPH

In May of 1998, MetaStar conducted a community-based Diabetes Screening pilot project using two distinct areas in Wisconsin. One objective of this project was to diagnose previously undiagnosed diabetics from the Medicare population in high risk groups who are likely to fit the criteria for diabetes mellitus. Another objective was to reduce episodes of new diabetic complications by earlier diagnosis and intervention towards stabilizing glucose control, thus reducing medical costs and increasing the quality of life. Catching the disease in its early stages could help reduce the high morbidity and mortality associated with the complications of the disease. This project also served to educate and inform individuals in these high risk groups about the seriousness of diabetes and the importance of preventive care.

To meet these objectives, MetaStar helped form coalitions using a medical organization (a hospital and a clinic, respectively) as the "hub" and drawing in other businesses and community organizations. This project was conducted in two locations as a pilot to determine the feasibility of identifying previously undiagnosed diabetics in order to start regular medical care aimed at preventing secondary complications.

Authors are associated with MetaStar. Ms. Drake is Communications Specialist, Ms. Schallert is Project Coordinator, Dr. Blustein is Medical Director, and Dr. Gold is Senior Vice President and Principal Clinical Coordinato. Reprint requests to: Jay A. Gold, MD, JD, MPH, MetaStar, 2909 Landmark Place, Madison, WI 53713.

Rationale

Diabetes mellitus is the leading cause of blindness, the leading cause of end-stage renal disease, and the leading cause of lower-extremity amputations in the United States. More Americans than ever are suffering from diabetes, with the number of new cases averaging 798,000 each year. The disease has steadily become more widespread in the United States since 1980, and today almost 16 million Americans have diabetes, a third of them undiagnosed.[1]

The prevalence of diagnosed and undiagnosed diabetes in the general population is about 6%. Specific high-risk groups have a much higher prevalence of the disease than the population as a whole. These groups have certain attributes or risk factors that either directly cause diabetes or are statistically associated with it.[2] The major objective of a community screening program is to identify individuals at high risk for having undiagnosed diabetes. A positive screening test is not conclusive proof of diabetes, but rather it conveys a high probability that the individual has the disease; individuals with a positive screening test must be referred to a physician for follow-up testing to confirm the diagnosis.

In addition to known cases of type 2 diabetes (NIDDM), national and community-based studies indicate that there are many adults in the United States who meet standard diagnostic criteria for diabetes but whose conditions remain undiagnosed. Most of the recent estimates suggest that there are an additional 8 million people with undiagnosed NIDDM. It has also been estimated that, on average, NIDDM is present for more than 10 years before clinical diagnosis in the United States. During this time of undiagnosed and untreated diabetes, microvascular disease is apparently progressing, as 15% of individuals with undiagnosed NIDDM have diabetic retinopathy and 5% to 10% have proteinuria.[3] Controlling glycemia is more effective in preventing complications before they develop than it is in reversing complications once they have become established. Early identification and intervention could significantly reduce diabetic complications and is cost-effective.[3]

The prevalence of diabetes in Wisconsin is higher than the nation's average and provides many opportunities to improve care in many settings. Wisconsin's Public Health Agenda for the year 2000 has set definitive goals, including reducing the incidence and prevalence of diabetes

among adults by preventing and controlling the disease. By taking a community-based approach, prevention programs will target those with the disease as well as identify those at risk for developing the disease. In Wisconsin, there has been a paucity of community-based services, especially in areas of high risk for diabetes such as the rural counties and the inner cities. In fact, Wisconsin has received a relatively low ranking (36th of 50 states) in the published Diabetes Index for the lack of coordinated community services and programs.[4] The CDC estimates that 18.4% of those over 65 years of age are diabetic, and if this estimate is applied to Wisconsin, there are at least 43,503 undiagnosed diabetics in the non-HMO Medicare population. Identifying these diabetics offers an opportunity for improvement in the treatment and prevention of complications.

Early diagnosis of diabetes is the key to preventing eye, heart, kidney and nerve damage that can be caused by an untreated diabetic condition. Once a diagnosis is made, controlling blood sugar starts with diet and exercise. Some people also will have to take insulin or medications. For those without diabetes, some studies suggest that exercise and good nutrition may prevent people from developing the condition.[5]

Methodology

To assess the Diabetes Screening Pilot Project quantitatively, MetaStar used three main quality indicators. These were: (1) the number of undiagnosed beneficiaries screened; (2) the percent screening positive who subsequently present to a physician; and (3) the number of newly diagnosed diabetics.

The areas for the pilot project were also carefully chosen. The first, a community in central Wisconsin with one hospital and surrounding clinics, was selected because it was recommended by several sources as a community actively interested in diabetes care issues. The second, an urban, inner-city community clinic, was selected because it too was recommended by multiple sources and represents an urban underserved area.

In the first community, the local hospital served as the main base for the coordination of planning meetings, interventions, and data collection. There is a Diabetic Educational and Referral Clinic located in the hospital; this clinic has an Advisory Board with membership from physicians, other health care professionals, community leaders, and consumers. Additional community agencies and health care professionals participated. The screening sites included primary care clinics, public health settings, senior centers, nutritional centers, and the hospital. When a Medicare participant screened positive for glucose testing, a referral was made to the primary physician office setting for continued testing. There were 20 separate screening sessions conducted on three separate days in various geographic sections of the community.

In the second pilot area, the setting was a large inner city community clinic serving primarily African-Americans. A study group representing clinicians, registered dieticians, nurses, volunteers, local charitable organizations and other community resources convened to determine the processes for the screening activity. In this setting, the clinic staff served as the coordinating leaders for the planning, meetings, and data collection. A decision was made to limit screening sites to the one community center that serves as a major meeting place for the area's Medicare population, to be conducted on only one day.

Case Selection Criteria

The project targets the universe of Medicare beneficiaries age 65 and over who do not have a diagnosis of diabetes in each of two geographic areas as defined by patient ZIP code. A person is considered to be previously diagnosed as diabetic if they have one part A claim or two part B claims with a diagnosis of diabetes in the Medicare claims database.

In the first area, the geographic area is a central Wisconsin Hospital Service Area (HSA). The Dartmouth Atlas[6] identifies a set of 14 ZIP codes as the ZIP codes for which most of the beneficiaries receive their health care in that HSA. In the second area, the geographic area is the several ZIP codes in the area immediately surrounding the clinic.

Interventions

MetaStar worked with clinics in each area to set up screening sites and dates. Each setting chose to send a brochure that included dates, times, risk assessment criteria, and a general invitation to attend the screening to Medicare beneficiaries age 65 and older in the project's ZIP code areas. The mailing indicated that the person was at risk of having diabetes and should go to a screening site on a date listed in the brochure for testing. Gifts of food items and specialty items were offered at both sites as an enticement to attend.

Other methods also were employed, namely the use of media advertisements, radio mentions, placing brochures at various businesses and community

meeting places for maximum visibility, and "word-of-mouth." These communications media are very difficult to measure. Each community was allowed to determine how these communications media would be used strategically for optimal results. For the second community, the content of the brochure was modified to be culturally appropriate. The study group decided to place the brochure in strategic places at the hub clinic, in area churches, and at a centralized senior center in addition to mailing it.

Results

The effectiveness of the direct mail brochure, the primary method used to communicate to beneficiaries about their risk of having diabetes and the importance of medical care, was difficult to measure under the circumstances of this project. There are many related factors that influence the value a person places on a direct mail communications piece which include literacy level, brochure design, incentives, interest in direct mail and cultural sensitivity.

For the first area, data indicated that of the 826 clients screened, 87 were referred to the primary physician based on the positive glucose results at the time of screening. Of those 87 clients, 75 completed the follow-up visit and were identified with a positive or negative diagnosis for diabetes. An equal number of clients were (a) diagnosed as a new diabetic, or (b) were previously diagnosed, that is, 16 for each group.

In the second area, 164 clients appeared for screening and 42 screened positive and were referred for follow-up. Fifteen of the 42 clients completed the follow-up visit and were identified with a positive or negative diagnosis for diabetes. Ten clients were previously diagnosed with diabetes. There have been no new diabetics identified thus far.

Conclusion

The collaborators deemed the project a success, in terms of working collaboratively with multi-discipline groups for a common goal and in terms of the amount of individuals that were given diabetes educational materials. Both areas had a much greater than expected turnout for screening. The first area expected to screen 200 to 300 and the second area 30 to 50 Medicare beneficiaries.

Based on the number of mailers sent out, the first area had a greater than 6% response rate and the second area had a 3% response rate. A 1% to 2% response rate from a mailing is considered good and 3% is considered excellent by marketing industry standards. In both communities, returns exceeded expectations.

As for the identification of new diabetics, the first area achieved this in part because of the high follow-up rate for those who screened positive. In this community, 16 newly diagnosed diabetics and 16 previously diagnosed diabetics were incorporated into the local medical system. These 32 Medicare beneficiaries now have the opportunity for better diabetes management with a much greater chance of living longer and healthier. The second area assessed the success for them based on the Medicare beneficiaries response to the screening, and the opportunity to educate and inform their constituency.

The evaluations from the participants in both areas were unanimous in rating the effort worthwhile, the experience rewarding and that they would readily participate in future projects with MetaStar.

For more information about this project, contact: Diane Schallert, RN, MS, CPHQ, (608) 274-1940.

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Tim Hartin, JD

From the Office of General Counsel

Joint Commission Sentinel Events Policy: An Overview

by Tim Hartin, JD, General Counsel, Wisconsin Health and Hospital Association, Inc.

The Joint Commission on Accreditation of Healthcare Organizations (the "Joint Commission") has recently instituted a new policy for sentinel events that is designed to improve the underlying processes and systems that might contribute to the occurrence of these events. This article will provide a brief overview of the new Joint Commission policy and a more detailed discussion of a major legal concern raised by the new policy.

By requiring a review of a sentinel event, and the creation and perhaps the disclosure of documentation discussing its cause, the new Joint Commission policy inadvertently creates a potential legal liability for accredited organizations. The sentinel events review and documentation could prove devastating in the hands of a plaintiff's attorney in a malpractice case. It may be possible under Wisconsin law to keep the review and documents privileged and confidential, but creating and maintaining these legal protections will require complying with the legal standards for a protected peer review process.

Sentinel Events Background and Requirements

The Joint Commission requires accredited organizations to engage in an internal review process after the occurrence of a sentinel event. According to the Joint Commission:

"A sentinel event is an unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof. Serious injury specifically includes loss of limb or function. The phrase, 'or the risk thereof' includes any process variation for which a recurrence would carry a significant chance of a serious adverse outcome."

An organization has 30 days to develop a "root cause analysis" document that delves into the underlying causes of the sentinel event, and develop an action plan to reduce the risk of such an event occurring again in the future.

The root cause analysis must include the following:

- proximate cause,
- common causes,
- systems and process that were involved,
- potential improvements that could be made to avoid recurrences,
- action plan,
- measurement strategy, and
- review of relevant literature.

There seems to be a consensus that performing this kind of analysis of sentinel events is a good idea from the standpoint of clinical systems and quality.

The Joint Commission also encourages accredited organizations to report any sentinel events to the Joint Commission. This voluntary self-reporting will help an organization avoid being placed on Accreditation Watch status or being surveyed. Strictly speaking, the Joint Commission does not require that sentinel events be reported, but has created a safe harbor and thus a strong incentive to report.

Joint Commission Review

The organization's response to some sentinel events (those that actually result in "unanticipated death or major permanent loss of function") will be reviewed by the Joint Commission. The Joint Commission has identified four different alternative kinds of review, ranging from full disclosure of all sentinel event work product to a "fourth alternative" level of review. This fourth alternative is intended to minimize the legal risk that Joint Commission review of the organization's sentinel event process could jeopardize any legal privileges accorded that process under state law. In order to ensure that the fourth alternative is used only when legal conditions indicate, the Joint Commission requires that an organization's CEO sign an affirmation to the effect that, under prevailing state law, fourth alternative review is necessary to protect privileged information.

The Joint Commission sentinel event policy has raised con-

cerns about the confidentiality of the peer review process in Wisconsin. By requiring the creation and possibly the disclosure of sensitive documents, the new Joint Commission policy has made an understanding of peer review privilege and confidentiality essential.

Privileged and Confidential Information

There is a legal distinction between "confidential" information and "privileged" information. Anyone can claim that certain information, such as trade secrets, is "confidential" and attempt to control its distribution. Sometimes, the law requires that certain kinds of information be kept confidential, such as patient health care records, and imposes penalties for unauthorized disclosure. Peer review proceedings and work product should be kept confidential under Wisconsin law.

"Privileged" information is a much more restrictive category. Privileged information cannot be compelled by a court (unless the privilege has been waived). Thus, the Fifth Amendment grants a privilege against self-incrimination; we cannot be compelled to testify against ourselves. The attorney-client privilege means that lawyers cannot be compelled to testify about the legal work that they do for their clients.

There is a great deal of confidential information that is not privileged. For example, a court can compel production of patient health care records. However, privileged information must be kept confidential. If privileged information is widely distributed, the privilege is generally said to be waived and a court can compel production of the information.

Peer Review Information

Section 146.38 of the Wisconsin Statutes creates the following obligations in connection with the health care peer review process:

- Persons participating in the review or evaluation of health care providers may not disclose information acquired in connection with their review.
- Organizations or evaluators are to keep records of their activities, which are not to be released or used in civil actions for personal injuries.
- Information presented during the review is not immune from discovery just because it was so presented.

The Wisconsin courts have held that, in order to be privileged, the review must be "conducted in connection with any program organized and operated to help improve the quality of health care, to avoid the improper utilization of the services of health care providers or to determine the reasonable charges for such services."[1]

Whether a sentinel events review will meet this standard remains to be seen, as the question has not yet been decided by a Wisconsin court.

Protecting Sentinel Events Information

As with all privileges, the courts have read the Wisconsin peer review privilege narrowly, and have excluded hospital governing bodies and credentialing committees from the privilege on the grounds that they are only indirectly involved in peer review. There is no guarantee that sentinel events review will be recognized as privileged. However, in order to maximize their chances of protecting sentinel events documents with the peer review privilege, accredited organizations should take care to ensure that all sentinel events review is done within a peer review structure.

The Wisconsin courts have indicated that, at a minimum, a certain degree of formality is required for peer review to create the privilege. Thus, the committee charged with performing sentinel events reviews should be "a group of people that has a more or less constant membership, a body of officers, a purpose, and usually a set of regulations."[2]

In addition, all work product of the committee should be kept as confidential as possible; the more widely privileged material is distributed, the more likely it is that a court will conclude that the privilege has been waived. It remains to be seen whether sharing sentinel events documents with the Joint Commission will affect the privilege, as the question has not yet been decided by a Wisconsin court.

Unfortunately, the current state of the law on this issue leaves a great deal of uncertainty that will probably not be dispelled until some cases have been decided, if then. Individuals or organizations with specific questions about the peer review privilege are encouraged to consult with their attorneys.

1 *Mallon v. Campbell*, 178 Wis. 2d 278 at 286. (Ct. App. 1993).

2 *Mallon* at 287.

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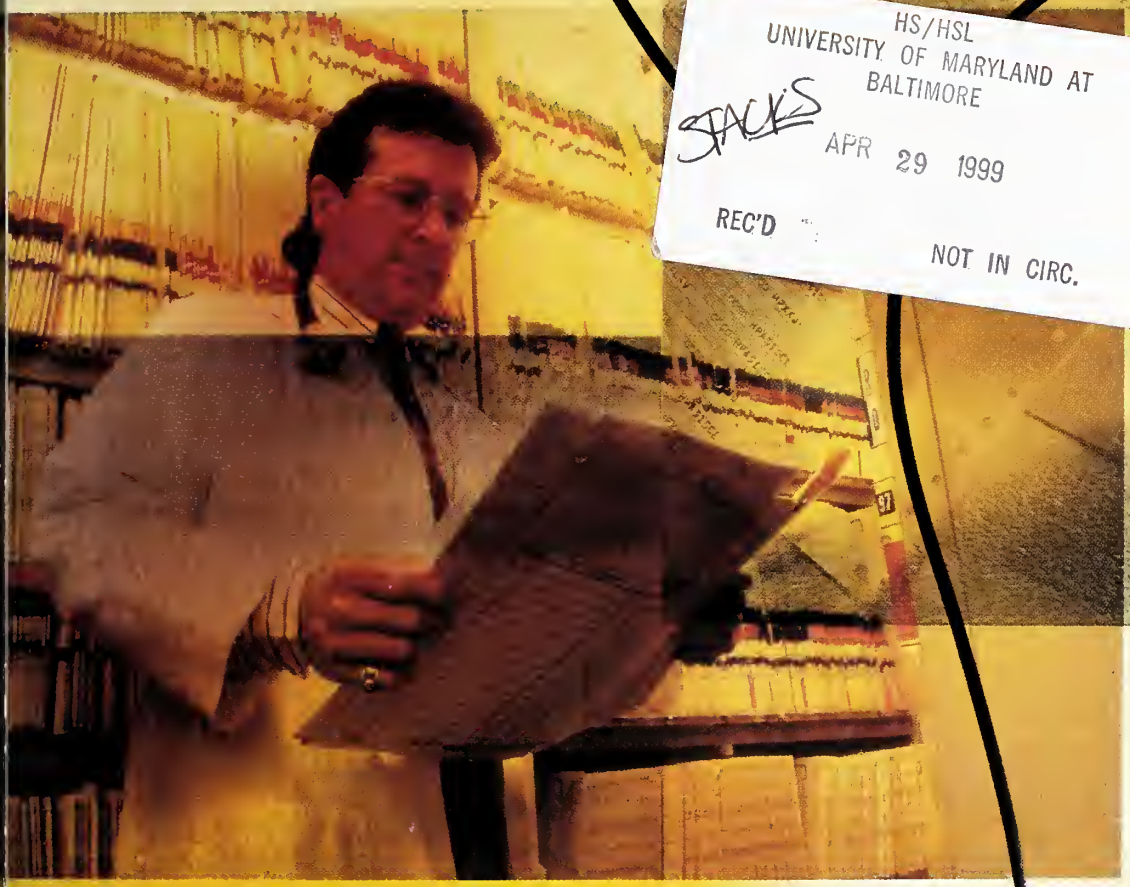
WMJ



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Evidence-Based Medicine: Fad or Fixture?

by Thomas C. Meyer, MD, WMJ *Medical Editor*

"...the world of medicine is changing rapidly - perhaps too rapidly for our previous habits to suffice."

•

"Not all 'literature' is 'evidence' and not all evidence is valid or relevant to the patient at hand"

•

"If we are to fight for the best decisions for our patients, we must be prepared to support our decisions with more than just opinions and anecdotes."

•

"EBM is...a contemporary paradigm for practice which is efficient, scientifically reasonable and axiomatically logical."

These quotes are all taken from the papers submitted by Richard Gross, MD, and his colleagues in response to your editor's request to tell us what Evidence-Based Medicine (EBM) is all about and give us some idea of what it entails. Doctor Gross and his colleagues have succeeded beyond our expectations in developing this EBM "primer" and we salute them. It is our hope that this issue of *WMJ* can help each of us determine whether we should make the effort to incorporate EBM into our practices.

At least in my mind, EBM got its start in Cambridge, England about 20 years ago when a Doctor Cochrane observed that the practice of medicine was becoming increasingly dependent on literature that was poorly controlled, filled with author bias and frequently irrelevant to "here and now" clinical problems. Cochrane opined that only results from strictly controlled studies and/or metastudies should be used in clinical problem solving. He set about collecting studies that met his strict criteria and this search continues with comparatively few published articles meeting the criteria. The crux, of course, is finding the study appropriate to the clinical problem in hand.

It is definitely possible to incorporate EBM into everyday medical decisions, however. In "A Body of Evidence Everybody Can Use" (p. 15), Marc Kennedy talks with physicians using EBM in theirvpractices today.

Unfortunately, "EBM is decidedly not a panacea," according to Gross. And EBM is not without its critics. In his article entitled, "For Some, the Jury is Still Out on EBM," (p. 20) Kennedy examines those criticisms and provides *WMJ* readers an alternate view of EBM.

If you enjoy "playing" on your computer and this issue sparks some interest, you may wish to look over the "Evidence-Based Medicine Toolkit" on the World Wide Web at: http://www.med.ualberta.ca/ebm/ebm.htm. The site gives you the opportunity to review the tools on applying evidence to make better medical decisions offered by the University of Alberta working group.

Ultimately, the choice to incorporate EBM into your practice is yours. We hope, however, that this issue of *WMJ* will give you the background you need to make an informed decision.

"The real issue is not whether to grow, it is how to grow and for what purpose."
-Anonymous

WMJ

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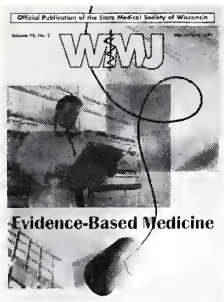

COVER THEME EVIDENCE-BASED MEDICINE

"As the avalanche of medical knowledge doubles in size every few years, remaining intellectually both complete and current (without becoming overwhelmed) has become an unrealistic goal," says Richard Gross, MD.

Just as medical knowledge has mushroomed, technology, research methodology and information science have taken great strides. Evidence-Based Medicine enables physicians to efficiently access the most recent medical information available via computer.

We hope this issue of WMJ, *our 'Evidence-Based Medicine primer,' gives physicians the background they need to make an informed decision about whether EBM is right for them.*

Cover design by Kendi Parvin, *WMJ* Managing Editor

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Physician Citizen of the Year

Physician Gets in the Game: Passion for Hockey Leads to Community Involvement

by Steve Busalacchi, Director, News & Information

It's lucky for Antigo residents that **John McKenna, MD,** and his wife Elsa had seven children, five of whom are boys.

The boys picked up their father's love for hockey, and Dad responded by building them a backyard rink. As they grew up, it only made sense to establish a high school hockey program, so he took a shot at that goal and scored. When the Antigo High School hockey team became a reality, he became the team doctor.

Doctor McKenna's latest project is to raise money for a community pool.

"You don't know any million dollar donors, do you?" Dr. McKenna cracked.

"He's (Dr. McKenna) always had the total community as the focus of all of his work, and I've never seen him perform anything for selfish reasons," said James Turnbull, MD, who nominated Dr. McKenna for SMS Physician Citizen of the Year.

Based on nominations received from the public, the SMS Commission on Public Information selects up to eight Physician Citizens of the Year from various medical society districts in the state. The award honors its recipients for the uncompensated civic, cultural, economic and charitable services they have provided to their local or state communities. It recognizes physicians, including Dr. McKenna, who dedicate themselves to improving their community and state.

Hockey Interest Goes Way Back

Born and raised in the Antigo area, Dr. McKenna was one of eight kids. After his parents made an ice rink for them in the back yard, ice skating soon became a passion that would last his whole life. It's no wonder then that he did the same for his kids in their back yard, and for all of the kids in the community by helping to build the high school rink.

> "He's (McKenna) always had the total community as the focus of all of his work, and I've never seen him perform anything for selfish reasons."
>
> *James Turnbull, MD*

"We built the rink on our hands and knees," the doctor-turned-mason remembers. "I had to take three days off after they poured the concrete because I was in charge of correcting the leaks." The family practice doctor needed time to heal because he suffered calcium and concrete burns from the work.

"His true love is the youth hockey program," Dr. Turnbull says. "He gets a big kick out of it."

The biggest kick came during the 1992-93 school year when two of Dr. McKenna's sons played on the Antigo High School team that won the state championship against Madison West.

Beyond the Rink

Dr. McKenna is known in the community for his health care planning efforts, to make sure the small-town residents are well served. For example, he mentors resident physicians who are in their final years of family practice specialty training and has helped develop a rural residency program for the family practice specialty.

"His enthusiasm has been met with more enthusiasm from younger doctors," Dr. Turnbull says.

That enthusiasm also led to his becoming a school board member. McKenna enjoyed it so much, that he decided to seek another term, and found himself in the middle of a hot race.

"A funny thing happened when I was running for re-election, I got beat," McKenna quips without a hint of bitterness. He says he never felt too bad about it.

"He's (McKenna) not afraid of controversy, but he doesn't go looking for it," according to Dr. Turnbull.

These days, Dr. McKenna is looking forward to his retirement at the end of the year. Both he and his wife enjoy biking, and plan to bike across the country in stages.

Even after he retires, Dr. McKenna pledges to continue his work with residents and stay involved with his favorite sport. He just wishes he still had children on the high school team.

"I'm sorry I ran out of hockey players, because I sure enjoyed it."

Who's in the News

David E. Amos, MD, CMD, has earned the Certified Medical Director Award by the Board of Directors of the American Medical Directors Certification Program. He was also awarded the Geriatric Recognition Award from the American Geriatric Society and the Physician Recognition Award from the American Medical Association.

James DeLine, MD, a doctor from Vernon Memorial Hospital, has received special recognition from the Wisconsin Academy of Family Physicians. Doctor DeLine has developed a birthing center next to his office to provide for safe delivery services for the Amish women of the community. He assists local ambulance squads, serves as a mentor for medical students, and participates in community service projects.

Kevin Derus, MD, and Jeff Derus, MD, are using rock 'n' roll for good, not evil. They are helping to raise money for a 10-year-old girl who has bone cancer. Sale of their Packers-oriented CD, "Rockin' in the Red Zone," will go to the Make-A-Wish Foundation. This is the third year they have helped Make-A-Wish with their music.

G. V. Hering, MD, a doctor in the Denmark area for over 50 years, was presented the Denmark Lions Club's Community Service Award. He was recognized for donating medical and office items from his former clinic to equip health facilities in Mexico.

Robert House, MD, a family practitioner with La Salle Clinic in Ripon, was one of 12 state recipients of the Family Physician Community Service Awards presented by the Wisconsin Academy of Family Physicians. Doctor House was honored for his work in actively recruiting physicians to the Ripon community, initiating the community EMT program, and serving as medical director for several local nursing homes. He has also served as team physician for various high school and college sporting events.

Wauwatosa ophthalmologist, **Jeffrey Kalenak, MD,** has been named the co-recipient of the Lewis Rudin Prize awarded by the New York Academy of Medicine. The award honors the most outstanding original research article on glaucoma published in 1997. Doctor Kalenak co-authored with Edwin Stone, MD, at the University of Iowa.

Menasha orthopedic surgeon **Joseph Pilon, MD,** and Chilton surgical technician Pat Wittmann spent most of November working as volunteers at Bugando Medical Center in Mwanza, Africa. The 1,000-bed hospital they worked in serves a region of 8 million people. They traveled to Tanzania at their own expense as members of Orthopedic Overseas, a division of Health Volunteer Overseas. The Tanzanian program was established in 1993 by **Wendelin Schaefer, MD,** a Sheboygan orthopedic surgeon.

James Veum, MD, was recognized as one of ten people who made a difference in 1998 in Appleton. He retired after a long and distinguished career as a healer and a hugger, and a man whose dream of getting a Boys and Girls Club up and running came to fruition.

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The individuals listed below were recently elected to SMS membership by their County Medical Societies. We are pleased to welcome them to the SMS.

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Karla G. Myhra-Bloom, MD

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Ashok Kumar Wadhera, MD
John Ingersoll Waters, MD

(S) designates medical student membership

AMA Awards

The SMS member physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations.

Roger A. Bell, MD
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In Remembrance

Blackmer, Jr., Franklin H., MD, 58, of Bruce, passed away December 23, 1998. Doctor Blackmer earned his medical degree from the University of Colorado, Denver, under the auspices of the Wiche Program. He completed an internship at Genesee Hospital in Rochester, NY, before serving two years as an Air Force Captain with the US Air Force Medical Division at Richards Gabaur Air Force Base in Kansas City, MO. He then completed a residency in radiology at Boston City Hospital. He served as head of radiology at hospitals in Maine, Colorado, and Washington before becoming Chief of Radiology at Rusk County Memorial Hospital, Ladysmith in 1993.

Doctor Blackmer is survived by his parents, Mr. & Mrs. Franklin H. Blackmer, of Missoula, MT; his sisters Diane Cecily, of Pittsburgh, PA, and Andrea Bateen, of Helena, MT; his children, Laura DeMartino, of Wyckoff, NJ; Tracy Blackmer, of New York; Michael, of Boston, ME; and granddaughter, Lily DeMartino, of Wyckoff, NJ.

Eidsmoe, Noland A., MD, 83, of Rice Lake, passed away on January 4, 1999. He joined the Civilian Conversation Corps in 1932 and worked in the Hayward area for five years. He earned his medical degree from the University of Wisconsin in 1943, and completed his internship at St. Lukes Hospital, Duluth, MN. In 1944, he entered the US Navy and served in the South Pacific for 18 months, then was transferred to Wold-Chamberlain Field in Minneapolis until his discharge in 1946. He returned to Rice Lake and opened his own medical practice, which he operated until his retirement in 1984. Doctor Eidsmoe was an avid hunter and fisherman and wrote several articles on fishing and hunting, which were published by *Midwest Outdoors*. He was Chief of Staff at Lakeside Hospital, in Rice Lake, Secretary of the Barron-Washburn-Burnette County Medical Society, a Life member of the SMS, and a member of the 1993 SMS Fifty Year Club.

Doctor Eidsmoe is survived by his wife, Helen; his children, Noland Jr., of Phoenix, AZ; Thomas of Denver, CO; John, of Rice Lake; and Louise Bertsch, of St. Paul, MN; five grandchildren and four great-grandchildren.

Houlihan, James T., MD, 79, of Minocqua, passed away January 23, 1999.

Doctor Houlihan earned his medical degree from Loyola University School of Medicine and completed his internship and residency at Little Company of Mary Hospital in Evergreen Park, IL. He was a captain in the US Army and was director of medical education in Fort Sam Houston, TX. In 1972 he joined Lakeland Medical Associates and the medical staff at Howard Young Medical Center. Doctor Houlihan served on the SMS Commission on Continuing Medical Education and was a member of the 1994 SMS Fifty Year Club.

Doctor Houlihan is survived by his children; James T. (Sue), of Oak Lawn, IL, John (Ricky), of Minocqua, Michael, of Wasilla, AK, Mary Ann (James) McManus, of Palos Park, IL, Geraldine (David) Finley, of Aurora, IL, Peggy (Greg) Peck, of Minocqua, and Lorraine (Bernie) Krueger, of Chugiak, AK; 11 grandchildren, and one great-grandchild.

Murphy, George V., MD, 82, of Milwaukee, passed away January 19, 1999. Doctor Murphy earned his medical degree from Marquette University in 1943 and served in World War II as a major in the Army Medical Corps from 1943-46. He returned to Milwaukee and completed his residency in internal medicine at Woods Medical Center and was a general practice physician in South Milwaukee from 1950 until his retirement in 1986. He was co-founder of the South Milwaukee Clinic and Corporate Physician at Bucyrus Erie in South Milwaukee. Doctor Murphy was vice president of the American Academy of Family Physicians, Chief of Staff at Trinity Memorial Hospital, member of the 1993 SMS Fifty Year Club and SMS Life Member.

Doctor Murphy is survived by his wife, Kathleen; 12 children, Margaret (Paul) West, Joseph (Hon. Kitty Brennan), Ellen (Marc) Fogelberg, Colleen (Robert) McSweeney, Patrick, Mary (Thomas) Mulroy, Jerome (Stephanie), Sean (Mary), Seamus (Belinda), Elizabeth (Robert) Duero, Matthew (Terri), and Monica (Brian) Ricci; and 26 grandchildren.

Samuelson, Clarence, MD, 76, of Chippewa Falls, passed away January 20, 1999. Doctor Samuelson earned his medical degree from Marquette Univer-

sity Medical College in Milwaukee and served his internship at St. Joseph's Hospital, Milwaukee. He served in the US Army at Camp Roberts, CA in 1951, and from 1951-1954 he served as a US Air Force officer in Montgomery, AL and Scott Air Force Base in St. Louis, MO. From 1954-1975 he practiced in Hartland, and from 1975-1989 he practiced in Chippewa Falls.

Doctor Samuelson is survived by his children, Barbara Ann (James) Pape, Madison; Betty Marie (Mark Heleniak) Samuelson, of Wauwatosa; Paul, of Hartland; and two grandchildren, Jeffrey and Bethany Pape.

Schott, Edward George, MD, 85, of Sheboygan, passed away January 5, 1999. Doctor Schott obtained his medical degree from the University of Cincinnati School of Medicine in 1938. He joined the Sheboygan Clinic in 1941 after completing his internship and residency at Wisconsin General Hospital in Madison, specializing in ophthalmology and otolaryngology. He served in the Army Medical Corps from 1942-1946, obtaining the rank of major, and serving in the 44th Wisconsin General Hospital Unit in Australia, New Guinea and the Philippines. Doctor Schott received the Sheboygan Rotary Good Citizenship Award in 1979, the Sheboygan Memorial Health Foundation's Ambassador's Club Distinguished Service Award in 1992, obtained Life Membership in 1991 in the State Medical Society, and was a member of the 1988 SMS Fifty Year Club. He served in many professional capacities at both Sheboygan Memorial Hospital and St. Nicholas Hospital, president of the Sheboygan Clinic and held offices in the Sheboygan County Medical Society. He retired in 1987 from the Sheboygan Clinic.

Doctor Schott is survived by his wife, Barbara; six children, Edward Jr. (Madalyn), of Spring, TX; Elizabeth (Michael) Spangler, of Muscatine, IA; Katherine (David) Quasius, John (Martha), Jean Schott, MD (William Wagner, MD), and Margaret Harper, all of Sheboygan; and 16 grandchildren.

Tybring, Gilbert B., MD, 78, of Madison, passed away February 1, 1999. He earned his medical degree from the University of Buffalo, NY, completed his internship at Buffalo General Hospital, and his residency at E.J. Meyer Memorial Hospital, both in Buffalo, NY. Doctor Tybring served in the US Army from 1946-1948. Doctor Tybring was consultant in psychiatry at Lakeview Sanitarium, consultant psychiatrist at the Office of Alcoholism Program with the Wisconsin State Division of Mental Hygiene, staff psychiatrist with the Dane County Mental Health Center, Chief of the Psychiatry Section at Madison General Hospital, as well as being on the medical staff there, and consulting medical staff at St. Clare Hospital, Baraboo. Doctor Tybring was editor of *The Wisconsin Psychiatrist*, a quarterly publication of the Wisconsin Psychiatric Association in collaboration with Dr. Richard Thurrell. He was a member of the James A. Gibson Society, American Medical Association, Life Fellow Member of the American Psychiatric Association, charter member of the Wisconsin Association of Alcoholism and Other Drug Abuse, and a member of the 1995 SMS Fifty Year Club.

Doctor Tybring is survived by his wife, Jane; his children, Gilbert (Patti), of Lakeland, FL; Nancy (Scott) Morningstar, of Palomar Mountain, CA; William (Terri), of West Bend; step-children, Katherine (William) Hudgins, of Belmont, MA; Emily Buchholtz, of Wellesley, MA; Paula (Ronald) Hopper, of Seattle, WA, and Louis (Barbara) Buchholtz, of Chico, CA; eight grandchildren, seven step-grandchildren; and four great- grandchildren.

Waisman, Raymond C., MD, 82, of Milwaukee, passed away on December 22, 1998 in Tucson, AZ, where he was spending the winter. Doctor Waisman earned his medical degree from the University of Wisconsin Medical School in 1940. He became a surgeon in a US Army field hospital in the Philippines and New Guinea during World War II. After returning from Japan in 1947, he completed his residency in Milwaukee, specializing in orthopedics and pediatrics. He started the Cerebral Palsy Clinic in Milwaukee and was instrumental in establishing several other area clinics. He was a member of the 1990 SMS Fifty Year Club.

Doctor Waisman is survived by his wife, Mary, of Milwaukee; his children, Anne (William Hausman), of Tucson, AZ; Ellen (Andrew Smith), of Los Angeles, CA; Dr. James (Georgette), of Los Angeles, CA; and five grandchildren, Dov, David, and Zachary Waisman, and Micah and Levi Smith.

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Guest Editorial

The Independent Medical Examination: Purpose and Process

by Sridhar V. Vasudevan, MD, and David L. Drury, MD, MPH

Introduction

Physicians who provide care to injured workers, at times, will encounter situations in which patients are asked to submit themselves for an "Independent Medical Examination" (IME). The result of such an examination may be contrary to the opinion(s) of the treating physician, subsequently leading to confusion and frustration for the injured worker as well as the treating physician. Understanding the purpose and process of IMEs will assist the treating physician in handling these adversarial situations constructively. In those less common situations where the IME has similar conclusions as the treating physician, the treating physician should pause and savor the uplifting experience.

The IME: Purpose and Process

Independent Medical Examinations (IMEs) are examinations performed by a physician who is not involved in the patient's care for the purpose of clarifying medical and job-related issues.[1] The Worker's Compensation insurance carrier or self-insured employer (insurer) has a legal right to request an IME. A survey by Alliance of American Insurers found 100% of the Worker's Compensation insurers use IMEs.[2] Although most requests for IMEs come from the insurer, requests may also come from the patient's attorney, the employer's attorney, the patient's treating physician and the Wisconsin Worker's Compensation Division (Division).

Wisconsin Worker's Compensation administrative rules allow the Division to request an IME called a "medical tiebreaker exam." A medical tiebreaker exam can be requested by the Division prior to a formal hearing only if an insurer concedes liability for the injury, but suspends benefits or refuses to pay for further medical treatment because physicians disagree about at least one of the following issues:

1) the extent of an injured employee's temporary disability;
2) the end of an employee's healing period;
3) an employee's ability to return to work at suitable available employment; and
4) the necessity for further treatment or for a particular type of treatment.[3]

The medical tiebreaker exam has been used successfully over the past two years in Wisconsin as an alternative to a formal hearing with an administrative law judge. After a formal hearing, the Division also has broader authority to order a medical tiebreaker exam on the cause or extent of disability, including permanent disability.[4]

IMEs typically are requested by insurers to address causation. If the IME determines that the patient's medical condition is not work-related, the insurer can deny the claim and not make payment. It is important to understand that an insurer must have a physician's medical opinion prior to denying a claim. Insurers and employers do not relish having to pay medical benefits for non-work-related problems. An IME provides recourse for the insurer in those situations involving questionable claims. These claims often arise when the treating physician does not provide adequate medical documentation to substantiate work-relatedness.

At times, insurers can become overzealous in their drive to deny worker's compensation claims. Since the insurer selects the physician to accomplish the IME and pays the physician a respectable amount for the service, there is indeed potential bias favoring the carrier. An extreme example of bias favoring the carrier is when the physician performing the IME finds all medical conditions to be non-work-related. This is very frustrating for the treating

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physician and the injured worker. The treating physician must recognize when the insurer has a strong or a weak case in denying claim. Consulting with a physician who has expertise in worker's compensation issues can assist the treating physician and the injured worker to assure that appropriate benefits are given.[5] Although an IME allows the insurer to deny the claim and gain in the short term, an IME report lacking credibility will cost the insurer substantially in the end.

Other issues which may be addressed in an IME include:

1) determining the correct diagnosis;
2) determining what is appropriate medical treatment;
3) recommending additional diagnostic tests and medical evaluation which need to be accomplished;
4) determining the employee's ability to return to work (fitness for duty);
5) rating the employee's permanent impairments; and
6) determining whether the employee has reached maximum medical improvement (end of healing).

Although an IME involves a physician and a patient, an IME does not constitute the usual "physician-patient treating relationship." Physicians involved in normal treating relationships with their patients are bound by medical practice ethics and expected to be patient advocates while providing optimal and appropriate treatment. On the other hand, physicians who complete an IME are providing a service to an insurer, employer or attorney by utilizing medical knowledge and medical skills to appropriately evaluate the available medical records and render specific opinions for the questions that have been raised. There is no physician-patient treating relationship when an IME is accomplished. The physician accomplishing the IME does not assume the role of the treating physician and does not provide any treatment recommendations directly to the patient. The IME report is sent to the party who requested the IME, and the physician is reimbursed by the same party.

Recent legislation requires that the patient is entitled to receive a copy of the IME report immediately upon receipt of the IME by the insurer or self-insured employer. Interestingly, the insurer is not legally bound to send the treating physician a copy of the IME report; thus, the treating physician should request a copy of the IME report from the patient if the insurer does not do so. When evaluating the IME report, "The Do's and "Don'ts of Independent Medical Examinations" (Table 1 and Table 2) may assist the treating physician to distinguish the objective and credible IME from the unfavorably biased IME. If the treating

Table 1: "The Do's of Independent Medical Examinations"

1) Obtain a detailed history of the injury/illness directly from the patient.
2) Explain the nature of your relationship with the patient, emphasizing that you are not providing a service to the patient but rather to the insurer (payor).
3) Perform a comprehensive examination.
4) Be honest in all communications.
5) Respect the rights of the examinee and other participants, and treat these individuals with dignity.
6) Reach conclusions regarding specific diagnosis, prognosis, and plan of care. This should be based on sound medical knowledge and have a clear rationale. If conclusions differ significantly from the treating physician(s), explain the rationale for the discrepancy.
7) Specifically address the posed questions of causation, effects of the injury/illness on the individual, psychological factors that may contribute to pain and disability, additional treatment needed, determination of healing plateau, and disability percentage.
8) Be prepared to address the conflict(s) in a professional and constructive manner.

Table 2: "The Don'ts of Independent Medical Examinations"

1) Make the potentially adversarial system more stressful.
2) Provide a "boiler plate assessment" without explaining the rationale for your conclusion.
3) Solicit patients to your practice.
4) Forget that you are performing a service for the insurance carrier and begin a physician-patient treating relationship implicit or explicit.
5) Forget that the report you generate will be legally provided to the patient (as well as be provided to the treating physician by the patient).
6) Compromise your medical ethics.

physician determines the IME has little merit, an appropriate response must be rendered in order to protect the benefits legally due to the injured worker. A response from a physician with expertise in worker's compensation and a solid understanding of the medical condition in question is preferable in order to minimize the risk of the patient losing entitled benefits.

Conclusions

The independent medical examination process can be useful and helpful in the delivery of care to injured workers. It can provide confirmation of the treating physician's diagnosis and plan of care. It can provide alternative treatment recommendations that may not have been considered. The IME can also weed out inappropriate claims and assist in "case closure" where appropriate coordinated services are not being provided and disabilities are unnecessarily prolonged. Most physicians performing IMEs are physicians who practice within the scope of their expertise and with appropriate medical ethics.

With increasing medical care costs, some insurers utilize IMEs to arbitrarily and capriciously terminate injured worker's benefits. The guidelines provided will hopefully assist physicians in assessing the merit of an IME completed on their patients so that appropriate action can be taken.

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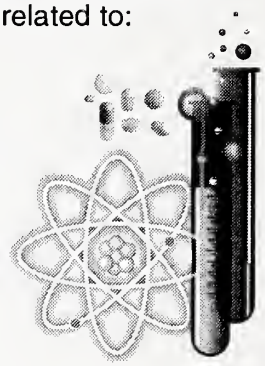

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A Body of Evidence Everybody Can Use

By Marc Kennedy, special to WMJ

Evidence-Based Medicine. Some physicians swear by it; more are beginning to dabble in it. Some worry it will lead to "cookbook" medicine and become a fiscal implement for managed care rather than a valuable medical tool. And others are wary of the validity of data included and the potential for overlooking valuable anecdotal information.

As with any new trend or innovation, there will be early adopters, curious converts and skeptics leery of jumping on any bandwagon without guarantees that the wheels aren't going to fall off.

Even as the use of evidence-based medicine (EBM) in medical practices gains momentum, many proponents are quick to point out its limitations as well as its value. Sure, it seems to save time and effort in researching relevant medical topics, and promotes a sense of order for doctors facing the prospects of wading through mountains of journals to keep up-to-date; but few regard EBM as a panacea. Many adherents claim EBM helps make them better physicians because it fosters communication between doctor and patient, but stress that it is no substitute for thorough, hands-on medicine.

"It can be a difficult concept to understand," said Richard Gross, MD, professor of medicine at the University of Wisconsin Medical School department of medicine. "It's not like saying 'here's a new pill.' It's more of a new way of thinking about medicine.

"We used to follow a 'just in case' model of remaining up-to-date. We would read journals, then mentally file away information for later use. This is not practical anymore. With EBM, we use a 'just in time' model, where we have the tools to quickly and efficiently bring ourselves up to speed on state-of-the-art, relevant findings about particular medical questions, which we then use in making decisions on how to best treat patients."

"EBM is a system that enables physicians to access the most recent medical information available via computer," said Gross. "The rate and volume of new information is so vast that previous tools are no longer adequate. It is almost impossible for a doctor to acquire thorough familiarity with any medical topic by reading journals leisurely."

That aspect of EBM appeals to Eamon Armstrong, MD, Eau Claire Family Practice Clinic and UW Department of Family Medicine. Armstrong is a family practice physican who began to apply EBM in his practice several years ago.

> "Most doctors keep up-to-date by looking in text books or asking colleagues. But ... there is a huge lag time between when a study is conducted and when it appears in a textbook. This lag time disappears with the Internet."
>
> *Eamon Armstrong, MD*

"I see it in a number of levels," said Armstrong. "For starters, it encompasses the basic tenets of medicine — doing the best for the patient while doing no harm — while respecting the patient input. And it incorporates new tools — computers, the Internet — that we didn't have before. For the first time it allows me to take research studies on thousands of patients and apply them to a single patient in front of me. That is meaningful to me and to the patient.

"The scary thing is that most doctors keep up-to-date by looking in text books or asking colleagues. But text books 10 years old are out-of-date. There is a huge lag time between when a study is conducted and when it appears in a textbook. This lag time disappears with the Internet."

Advantages of EBM

Armstrong said he uses EBM in training residents who work with him.

"With so much information, doctors can't possibly keep up. This engenders anxiety. We end up hoarding stacks of journals we won't ever read. EBM allows you to keep up by looking at data centered on the needs of real patients, enables us to keep up with the best evidence. Most of what my residents and I learn takes place around patients we see."

With EBM, Armstrong says physicians have a tool that helps them find answers to patients' questions — questions they did not have time to research before.

"For example, a staff member set up two computers with a Web site confined to our department with EBM databases," Armstrong explained. "We can find a good answer in a few minutes. Just today I was in a conference and a resident presented information on a new oral contraceptive. I wanted to see if there was an increased rate of stroke with the drug. Within two minutes I had a good answer using a CD-ROM."

He added that he recently had a patient who wanted to know if there were ways to prevent rapid spread of herpes.

"I gave her three options in a few minutes using EBM," said Armstrong. "The other neat thing is that the information is compiled by experts in EBM who pre-digest literature and summarize it in a user-friendly format. You can get a major paper summarized in less than a page. The average doctor will not be able to track down the original article easily, nor get a critical appraisal of it."

Saving Time and Effort

Armstrong considers EBM a more rational approach to practicing medicine.

"EBM frees me up to do things

that are more important and to stop doing things that are not effective," he said. "For example, a huge study in *JAMA* concerned women who had had a hysterectomy for benign reasons. It concluded that they no longer needed pap smears. So, instead of doing this procedure for these women, we can use that 20 minutes to address other issues; perhaps the need to consider having a mammogram, or a smoking intervention — something specific to that individual patient.

"EBM empowers physicians. It allows a junior medical person in a hierarchy to have access to expert information. Some people are uncomfortable with this, but it is a big plus for general practitioners and family practitioners."

It is this nearly immediate access to the latest information that strikes a harmonious chord for many doctors.

"One of the greatest advantages of EBM is that it enables you to manage new information with a positive and enthusiastic perspective," added Gross. "With the previous model it was easy to become overwhelmed as the amount and scope of knowledge surpassed the ability to handle information. It became out-of-date very quickly. Now we can use a new set of skills to resolve this problem. Though the information may change in six months, you still have the skills to discover the latest updated information."

Gross no longer recommends ordering urine and blood tests for most children during check-ups. After sifting and winnowing the evidence, he discontinued this for most patients who are otherwise healthy and whose symptoms did not indicate there may be an underlying pathology.

"Many tests are very expensive. We have to be conscious of medical costs; so we need to cut back on expensive procedures that do not produce results."

Cost Control Controversy

The very fact that EBM can help save resources by avoiding ineffective tests or procedures alarms some physicians. They worry that managed care providers will use EBM evidence to dictate the range of medical options.

"This starts getting controversial," said Armstrong. "Unfortunately, use of the term in certain areas has given it a bad name, where it has been abused by managed care organizations that have foisted practice guidelines on doctors and called it EBM. So naturally, these doctors feel that their clinical autonomy has been taken away.

> "EBM is not just about compiling the best scientific knowledge. It also respects the value of patient opinion. With EBM, patients participate; the physician takes a less patronizing approach."
>
> *Richard Gross, MD*

"But EBM can help us use resources more appropriately and cost effectively. I attended some EBM workshops in England. It has really taken off there, mainly because health care dollars are so tight they have to restrict care to things that really work. I think US medicine is also heading that way." Though some see EBM guidelines as a potential cost-cutting formula, it isn't that simple.

"If you are practicing effective screening, based on the evidence for a particular patient, a mammogram might be the right choice," said Armstrong. "There are additional costs involved. Doing the right thing sometimes can be costly."

Gross added that another criticism is based on a falsehood — that the end-all and be-all of EBM are statistics.

"Some critics misinterpret the discipline as a belief that all patient care should be based on the numbers," he explained. "This is inaccurate; it's a misunderstanding of the process. In fact, if anything, I spend more time and energy now listening to patients' feelings and values than I did before I adopted this approach.

"I've been incorporating EBM for five years. Personally, it has enabled me to address many situations that previously would have been frustrating for lack of a rational way to approach it. Now I welcome such situations because I can come up with the right approach. Also it has become obvious to me that sometimes the best evidence is not the same as perfect evidence. Even if it's far from the ideal, having a process in place is reassuring."

Determining Relevance a Key

A key aspect of becoming comfortable with an EBM approach is evaluating and determining validity and relevance of the articles, studies and other information that emerge during this process.

"This is a very important skill with learning to implement EBM," added Gross. "You get better at doing it as you go through the process. Much of what is out there as medical evidence is anecdotal and shouldn't be accepted as evidence. You learn to sort this out using critical appraisal skills."

"Good clinical hands-on medicine is critical to EBM," added Armstrong. "Unless you make a good clinical diagnosis, EBM isn't any good. You have to be careful when discerning any guidelines."

That some refer to EBM as "cookbook" medicine, proponents claim it is patient-oriented, not driven by medical dogma.

"It starts with the patient," said Armstrong, "You try to find

evidence that is directed toward the individual patient's needs. You start from the bottom up."

Armstrong added that some of the harshest criticisms are levied by those who haven't tried it. "People are skeptical as to whether you can actually practice it," he said. "Some who aren't computer literate find it daunting. Until I came to Eau Claire a year-and-a half-ago I didn't own a computer; I never used e-mail or the Internet. So now I teach and promote it in a basic and practical way. The beauty is that everyone can learn to use it. It's really just another tool at your disposal."

Before the advent of EBM, Armstrong said he had no mechanism to make larger studies relevant to his patients.

"Previously, we weren't able to do this with large studies. But now I have a way of making a study with 20,000 people relevant to my patients. I plug in a patient's age, sex, blood pressure, cholesterol, smoking status, and see what their chances of having a stroke or heart attack are in next five years. Patients, I find, can understand that. I can show it to them on the computer. It's amazing what a patient does when they see it for themselves; it makes sense.

Gross added that before EBM, "you'd have needed a background in biostatistics" to interpret this data.

"If one study reports data as 'relative risk reduction,' another as 'an absolute risk reduction,' and another as 'numbers needed to treat,' with EBM you can convert this information to the same number. It gives you a common basis for comparing evidence."

Both Gross and Armstrong agree that it isn't the "gee-whiz" aspects of the process that intrigues them as much as what they can do with the information: making it relevant to an individual patient.

"It's not good enough to learn that a drug lowers blood pressure," said Armstrong. "We want to know that people feel better, that they have fewer strokes. Physicians are starting to be demanding of researchers and studies to look at end points that matter to patients."

For example, he added, a recent study in *JAMA* described a drug used for treating asthma in children.

"The drug decreased airway obstruction by 10 percent. Previously I would have prescribed it based on this finding. But now with EBM, I'm looking for more information. Did the kids feel better? Did they spend less time at the doctor or in the emergency room? I'm not interested in a surrogate end point, but in quality of life issues. We can't be interested in just data. EBM needs to be patient focused. You start and end with what is best for them."

Patient Input as Medical Evidence

Proponents contend that another

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valuable aspect of EBM is that patient input becomes part of the equation of care delivery.

"The other piece that's important for a complete EBM approach is treating patients' values and preferences as part of the medical evidence," Gross said. "Though it may not be scientific evidence, it becomes extremely important in the decision-making. With the traditional model, a doctor may care about the patient's opinions, but they would not usually incorporate them into medical decisions. The doctor would presume to know what is best for the patient."

"EBM is not just about compiling the best scientific knowledge. It also respects the value of patient opinion. With EBM, patients participate; the physician takes a less patronizing approach. Experience and judgment of the doctor in practicing the art of medicine is most important here."

Improving Informed Consent

To less sophisticated patients, explaining technical data can be confusing. EBM makes it easier to present informed consent to patients, according to Gross.

"This has dramatically improved among doctors and patients. A consistent vocabulary is emerging among physicians. Before it was common to find three or four studies reporting the same thing but using different language. Now we can immediately compare results using language as a common denominator with EBM."

Gross added that physicians new to the concept of EBM don't need to rush in full bore to embrace it.

"Doctors can and have made the transition the way they would normally with anything new," Gross said. "It's impractical for a physician to incorporate EBM into the way they treat all patients. Often, you end up restricting this approach to complex cases, or when it is necessary to make a critical decision about treatment. Then, once you begin to get used to looking at medicine this way, you gradually begin to apply it to a general approach to treating frequent problems, not necessarily patients. Since any one doctor frequently sees a small subset of medical problems, over time he or she will acquire an evidenced-based strategy, and over time apply it to their patients."

Gross noted that many specialty societies have already established EBM guidelines and can act as resources for interested physicians. These include family medicine, psychiatry, internal medicine and cardiology, among others. Though there are numerous resources available, he says it will still take time to get used to practicing medicine using EBM.

"It's not something you learn overnight."

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For Some, the Jury is Still Out on EBM

By Marc Kennedy, special to WMJ

While many physicians are excited about the potential for using evidence-based medicine in their practices, not all are singing the praises of this approach of gathering medical information to help make appropriate diagnoses, prescribe effective therapies and evaluate prognoses.

"I don't want to come across as being against EBM per se," said Kesevan Kutty, MD, professor of Internal Medicine at the Medical College of Wisconsin and on staff at St. Joseph's Hospital in Milwaukee. However, Kutty, also a member of the *WMJ* Editorial Board, is concerned about what is considered evidence and what is disregarded.

"In a way, you can't look at medicine as always being an exact science. When one says that one wants evidence for everything, it presupposes that one looks at medicine as an exact science. One is presuming that everything has the same definable logic. If that is the understanding that surrounds evidence-based medicine, then the concept needs rethinking."

The most prominent issue to Kutty is that much of EBM is based on the results of random clinical trials (RCTs).

"Such trials do not always obtain valid information and often miss anecdotal information that may be significant in treating patients," said Kutty. "It calls for a careful clinical judgment and to evaluate the best available evidence. But 'best evidence' has many definitions, and herein lie the pitfalls.

"RCTs usually focus on certain types of data, certain criteria," he said. "So you are really relying on very circumscribed data. If you then try to make conclusions based on this data, you may be missing something. Randomized data are not the only ones that show a clinical response."

> "We have to look at medicine as an art as well as a science. . . To me, there are only two types of medicine–medicine that works, and medicine that doesn't work."
>
> *Kesevan Kutty, MD*

By embracing only RCT data, Kutty warns that physicians may be ignoring other types of potentially valuable evidence.

"This is one of the constraints of EBM," he said. "There really is no way to compensate for other types of information in this system. There has to be some way to use these types of results."

Quality and Scope of "Evidence"

Kutty is not alone in his reservations about EBM. According to "Problems in the 'Evidence' of 'Evidence-based Medicine," an article which appeared in the *Journal of American Medicine*, Volume 103, December 1997, the problems with EBM are several fold.

Authors Alvan R. Feinstein, MD, and Ralph I. Horwitz, MD, Yale University School of Medicine Departments of Medicine and Epidemiology, appreciate the concept of EBM. But they raise questions regarding the types of data included as evidence – and which data are not — how the data are analyzed, and to what extent the conclusions derived from the results of this analysis actually apply to real, individual patients.

"The laudable goal of making clinical decisions based on evidence can be impaired by the restricted quality and scope of what is collected as 'best available evidence'," the article's introduction states. "The authoritative aura given to the collection, however, may lead to major abuses that produce inappropriate guidelines or doctrinaire dogmas for clinical practice."

Feinstein and Horwitz contend that the evidence included in this analysis is constrained. Due to the nature of the RCT criteria, many valuable procedures and practices, many of them anecdotal, are not included in meta-analysis. Therefore, this infor-

mation is not considered as potentially valuable "evidence." They argue that most RCTs seldom reflect extremely pertinent and significant "soft" data, which are "distinctive to individual patients with the spectrum of a particular diagnosed disease, that identify cogent patterns of illness and pathophysiology."

EBM proponents counter that such data is not meant to usurp a physician's autonomy, nor to infringe upon the considerable flexibility which physicians expect when addressing the specific medical, social and psychological needs of patients. However, critics point out that not considering "soft" data on the front end when selecting evidence to include in a meta-analysis produces a skewed result that may influence how a physician treats a patient.

Errors of Omission and Inclusion

Feinstein and Horwitz point out several problems associated with selecting RCT data as a basis for EBM.

- RCT information often omits clinical details that may be crucial for therapeutic decisions, such as "difficulty in complying with therapy and causes for such noncompliance;"
- RCT information ignores subsequent therapy and consequences. For example, a patient who had medical therapy that was authorized but also had unauthorized surgery as well.
- The design and performance of the RCT itself may be substandard.
- Many RCTs include test subjects who are already expected to respond well to treatment.

The authors argue that RCTs, which originated in agricultural research, were never meant to answer questions about treating individuals. "Trials have almost always been used to offer an average value for efficacy in groups of patients receiving the compared therapies," the article stated. When treating an individual patient, however, such "averages" are supplanted by the medical condition of a specific patient.

They pointed out that two studies actually indicated that a significant number, and sometimes a majority, of clinical decisions are made based on non-RCT evidence.

"In a study of 109 patients hospitalized on a university medical service, 53% of the primary treatment were found to be supported by data from RCTs and in 29% of treatment, the clinical team had 'unanimity... about the existence of convincing nonexperimental evidence.'

In an analogous study at a 'suburban training general practice,' 30% of 101 therapeutic decisions were supported by RCTs and 50% by 'convincing nonexperimental evidence.'"

Preventive medicine is another area that randomized clinical evidence does not necessarily bear the standard. "In one recent evaluation, 76 often-recommended preventive practices were classified as having inconclusive support data for which 'decision-making must be guided by factors other than medical scientific evidence."

The authors pointed out that such "grey zones of practice" abound in modern medicine, including carotid endarterectomy, upper gastrointestinal endoscopy, hysterectomy and percutaneous transluminal coronary angioplasty. "RCTs may have been done," they wrote, "but the results have not produced unequivocal conclusions."

Kutty is convinced that practicing medicine effectively does not mean a total reliance on RCT data, nor abandoning them as irrelevant or unusable.

"Some things we cannot measure using EBM. But that doesn't mean that we should disregard them," he said. "We need to find ways to incorporate this knowledge into how we treat patients.

"It is an attitude that we need to overcome; that we won't bother with something if it is not EBM. Look at many alternative or complimentary practices. Results are often anecdotal, and do not fit within the EBM realm. But historically, nearly every advance in medicine has come from anecdotal evidence, especially when making observations with individual patients. All trials have begun from trying to answer questions at the bedside."

Despite differences in approaches of EBM and the knowledge that does not readily fit within its parameters, Kutty said he believes there can be a happy medium.

"I'm all for that, for combining the use of both approaches," he said. "For example, can you use massage therapy to prevent heart attacks? It is unlikely that you can measure this using EBM. But that doesn't mean that you shouldn't try to measure this some other way.

"We have to look at medicine as an art as well as a science. We must keep an open mind; those who create the guidelines for what should be included as evidence must keep an open mind. To me, to quote Arnold Relman, there are only two types of medicine," Kutty concluded, "medicine that works, and medicine that doesn't."

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Editorial

The Evidence is Overwhelming

Richard Gross, MD

INTRODUCTION

As the avalanche of medical knowledge doubles in size every few years, remaining intellectually both complete and current (without becoming overwhelmed) has become an unrealistic goal. Yet few would dispute that each of our patients deserves nothing less than state-of-the-art advice from their physician for every important medical issue they bring us. The challenge is daunting.

Fortunately, there is hope. Even as medical knowledge explodes around us, parallel advances in computer technology, research methodology, and information science have occurred. From these areas has emerged a new discipline known as evidence-based medicine (EBM). EBM offers clinicians a means of coping with – indeed thriving upon – the knowledge avalanche. This issue of *Wisconsin Medical Journal* is designed to introduce you to the basic elements of the discipline, to define its scope, and to induce you to learn more about EBM as it applies to your practice.

While the term is often overused and misunderstood, evidence-based medicine is no passing fancy. It has become a permanent part of the medical lexicon and has spawned entire academic groups (McMaster University), journals,[1,2] and international collaborations (Cochrane Collaboration). As if to validate its legitimacy, it has even attracted its own set of thoughtful critics.[3,4]

EBM enables us to sift through the ever-growing onslaught of new medical information efficiently. It provides the tools to find quickly and specifically the evidence we need to solve clinical problems, and to distinguish trustworthy evidence from sincere but misguided publications merely posing as evidence; it teaches us the vocabulary needed to crystallize the evidence in clinically meaningful terms. Importantly, it helps us to incorporate the patient's values and preferences into the process more consistently and reliably than by intuition alone.

Is all of this really new? Haven't most conscientious physicians always tried to practice EBM by referring to medical articles, attending continuing education seminars, and even performing the occasional Medline search when a troubling case warrants it? In fact, the above practices (which might be termed "literature-based medicine"), respectable and helpful in many ways, are often highly inefficient, fail to account for the quality of the information, and fall short of the mark in today's practice environment.[5]

HOW EBM AND LITERATURE-BASED MEDICINE DIFFER

It is useful to contrast evidence-based medicine with literature-based medicine. With literature-based medicine, we do indeed read about patient-related issues. Our readings might consist of text books, monthly perusal of a few journals in our specialties, an occasional review article, and perhaps even primary research articles once in a while. This approach has allowed us to maintain a certain uniformity of practice across the country, a sense of being up-to-date, and a steady (if slow) transfer of current research into practice. However, not all "literature" is "evidence," and not all evidence is valid or relevant to the patient at hand. Literature-based medicine fails to address how to obtain, appraise, understand and apply evidence in any coherent manner.

Literature-based medicine is suitable for obtaining background information about diseases and patient care; to the extent that it is evidence-based, so much the better. However, for specific decisions about tests and treatments, current, valid, relevant primary evidence is best. Here are some of the reasons why

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simply "going to the literature" may not yield the best results for our patients:

1. Standard textbook chapters are often three or more years out-of-date at the time of publication, and many of their references are even more outdated.[6] Availability in computer-readable form does not assure that a resource is either evidence-based or up-to-date.
2. Literature-based recommendations often rely on a recognized "authority," but may not rely on high quality evidence. The credibility of an authority should be based on her careful and thorough familiarity with the soundest evidence in the field; reputation, judgment, and experience may enhance but cannot replace this. Once established as the standard of care, such standards can be very difficult to reverse (lidocaine for ventricular premature contractions in acute myocardial infarction, routine pediatric tonsillectomy, extensive "executive" physicals).
3. Literature representing itself as evidence may consist of anecdotal case series, vague endpoints, reviews of reviews, and similar writings. Such efforts do not hold up to current standards of study design, statistical methodology, and clinical applicability.
4. Evidence obtained from special population groups is often applied to the general population, for whom it may be inappropriate. Analogously, basic research at a molecular level or in animal models may be applied to humans even before human outcome studies verify their benefits and risks. Notwithstanding the obviously vital role of pure biological research, its conclusions require elaborate validation in patient populations before achieving wide applicability.

EBM addresses these issues. It is a cross-cultural discipline applicable to all specialties, experience levels, and practice settings. It is a great "equalizer," allowing almost any practitioner to quickly contend with the same evidence available to the most seasoned specialist. While it cannot replace years of experience and clinical judgment, it can at least assure that decisions are made based on the best evidence available.

DESCRIBING EBM

The process of practicing EBM involves several steps. The acronym FROP is helpful in recalling them:

Framing an Evidence-Based Question
To understand and obtain the evidence, one first needs to construct the clinical question in a way that can be answered with obtainable evidence (if it exists). This crucial step can be more challenging than it might appear. The article by Eamon Armstrong, MD, explains how to approach the construction of the evidence-based clinical question.

Retrieving the Evidence
You may have personal Internet access, rely on a medical librarian, or both. Either way there are new, tested strategies for finding the evidence you need quickly, specifically, and consistently. Learning these techniques makes the search a rewarding and useful tool rather than a confusing and overwhelming chore. Joel Buchanan, MD, Karen Dahlen, MLS, and Michele Matucheski, MLS, describe the principles of efficient literature searching in their article. They also introduce other evidence resources (besides Medline) which have special advantages.

Appraising the Evidence
Once you find literature references, you need to sort the wheat from the chaff. Understanding study design, key components of statistical validity, and whether a study is applicable to your patient is a skill no longer limited to biostatisticians. New concepts and approaches allow any well-prepared practitioner to do this quite well with surprising speed. The article by Christine Siebert, MD, and Laura Zakowski, MD, addresses the design of common research studies, including the strengths and weaknesses inherent to each. This information can help you determine the soundness of the research behind the evidence you have found.

Dean R. Keller, MD, and I introduce methods for determining whether a specific study is valid and applicable, in terms a practitioner can use without specialized biostatistical knowledge.

Understanding the Results
New definitions allow you to understand evidence in more usable ways: examples include likelihood ratios for diagnostic tests, "numbers needed to treat" for therapies, and relative and absolute risks for prognostic evidence. The article by David Katz, MD, presents the concepts behind these "care numbers" and what they mean to the practitioner.

Patient Application of the Evidence
The two important components of this step are to elicit and employ the patient's subjective values and

preferences, and to use these along with the evidence you have obtained to make the best decision for the patient.

Norman Jensen, MD, then provides insight into eliciting patients' values in a form conducive to sound medical decision making. Finally, our summary attempts to synthesize these components to complete the decision-making process.

A PANACEA?

With or without EBM, we will continue to provide excellent care; with or without EBM, we will continue to make misjudgments and mistakes. The best evidence will not always be perfect evidence, and the best decision may not always work out best for a given patient. EBM is decidedly not a panacea. We do not even know, ironically, whether practicing EBM results in improved patient outcomes compared to standard practice (the evidence is insufficient!). We do know that its premises and logic allow us to provide the best medical advice available, whatever its limitations. EBM is thus presented not as an ultimatum for "how to practice in the 21st century," but as a contemporary paradigm for practice which is efficient, scientifically reasonable, and axiomatically logical.

CONCLUSION

This special issue of *Wisconsin Medical Journal* is but a primer, an inducement to learn more. On behalf of the contributors, I hope the effort will be rewarded with a new understanding of how to approach patient care in this era of breathtaking advances in medical knowledge. As an added reward, we hope you reap higher levels of professional and personal satisfaction from your practice as you master these new tools of the trade.

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The Well-Built Clinical Question: The Key to Finding the Best Evidence Efficiently

Eomon C. Armstrong, MD

The stepwise implementation of an evidence-based approach to patient care begins with a critical task: converting the informotion needs you have identified into on onsweroble question.

The question you construct will provide the foundation for the entire evidence-based medicine process. The more solid the question, the more efficient your task and the more relevont and valid your evidence will be. Before we discuss techniques ond principles of osking well-built clinicol questions, let us look at the generol attributes of the evidence we hope to find ond use.

USEFULNESS OF CLINICAL EVIDENCE

The "usefulness of medicol informotion" equotion below succinctly summorizes the relotionship between relevonce, volidity ond work when trying to answer o clinicol question.[1]

$$\text{Usefulness} = \frac{\text{Relevonce} \times \text{Volidity}}{\text{Work}}$$

Work encompasses factors such as time, monetary cost ond mentol ond other energy utilized in trocking down the onswer. Relevonce ond volidity refer, respectively, to how occurotely the evidence meosures whot the authors stote they intended to meosure ond how opplicable the informotion is to the potient ot hond ond; these two concepts ore discussed more fully in other orticles in this issue. Your clinicol question determines the usefulness of the evidence you ultimately use. For example, if your question leads to answers thot ore both relevant and volid but which required a whole day to trock down and appraise, it isn't particulorly "useful" for decision making today. Realisticolly, o lorge amount of "work" for a relotively smoll goin in knowledge would discouroge onyone from completing the process. Alternately, you might hove osked o question which could be answered very efficiently and with evidence of high validity; if its relevance to your patient is low, it is not useful. The well-built question will reduce the risk of such unrewarding evidence expeditions.

To most effectively use EBM, we strive to build the question *at the time of contact with the potient or soon ofterwards.* By addressing questions thot orise around problems we encounter commonly, we will more effectively keep up-to-dote, and will be more likely to retoin the information compared to informotion obtained in on incidentol, non-clinicol context.

WHAT MAKES A CLINICAL QUESTION WELL BUILT?

First, the question should be directly relevont to the problem ot hond. Next, the question should be phrosed in such o woy os to focilitote searching for a precise answer. You are basically preparing a checklist or writing a seorch strotegy for your literature seorch, so that you can extroct the desired information from your chosen database or index system in the most rational and efficient way. For this, you need a list of key terms to search. Essentiolly, you must convert o gop in your knowledge into o precise question, so that you con then seek the best onswer to it. To achieve these oims, the question must be focused and well articuloted for all four ports of its "onotomy:[2]"

1) The potient problem or situation being addressed. In evidence-bosed medicine, this involves defining the patient as a member of o populotion, in terms of age, sex, ethnic group, risk profile, ond other troits you judge to be clinicolly importont.
2) The intervention, i.e. the controlloble varioble you wish to consider.
3) The comporison intervention or exposure, when relevont.
4) The outcomes; what you wish to achieve in terms of treatment goals, adverse effects to avoid, diognoses to refine, ond so forth.

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1) The Patient Problem or Situation
As discussed in subsequent articles, one of the most important tasks in appraising a research article is to determine whether it is applicable to your patient. When building your question, you can make this task easier and more successful if you characterize your patient sufficiently to allow comparison with the patients in the studies you find.

For example, suppose your question dealt with prostate-specific antigen. If you build your question carelessly, you might search for evidence about the test in all males; a more thoughtful approach might be to characterize the patient as asymptomatic, African-American males under age 55 (assuming that your patient met these criteria).

2) The Intervention
The intervention you wish to assess could be:

- Therapy (e.g. choice of drugs).
- Prevention (e.g. counseling about lifestyle risk factors).
- Diagnostic Testing (e.g. how much more likely is your patient to have Lyme Disease if the antibody test is positive?).
- Exposure/Etiology (e.g. to what extent are smokers at increased risk of developing bronchogenic carcinoma?).

The "outcome" is the relative likelihood of experiencing the measured parameter in patients who are exposed to the intervention compared to those who are not.

3) The Comparison
You may wish to look for a comparison of two or more interventions or exposures, e.g. to see if some innovative procedure is "better" than your current practice or beats the accepted "gold standard." Remember that in some cases, "doing nothing" is the exposure to which you might be comparing the intervention.

4) Outcomes
A precise endpoint needs to be defined, not simply "the best result." Such an endpoint might include unwanted outcomes such as the probability of side-effects of drugs, adverse effects of treatment, and costs. Desirable endpoints are sometimes as unequivocal as survival or death but more typically include cure and remission rates, prevention of disability, recovery of function and savings in time, money and effort.

HOW DO THESE CLINICAL QUESTIONS ARISE?

During a patient encounter, the clinician may be uncomfortable making a decision until more is known. Finding these "knowledge gaps" can prompt the clinician to react in several ways. Sometimes they engender emotions such as anxiety or guilt; evidence-based medicine encourages us to respond in a cognitive fashion by turning our implicit learning needs into explicit questions and searching for answers.

WHERE DO THESE QUESTIONS COME FROM?

Clinical questions can arise from virtually any aspect of the clinician's work with patients. After years of being asked questions, as well as asking their own, Sackett and his colleagues have found that most of their questions arise from the following eight aspects of clinical work:[3]

1. *Clinical findings:* how to gather clinical findings properly and interpret them soundly.
2. *Etiology:* how to identify causes for disease including its iatrogenic forms.
3. *Differential diagnosis:* when considering the possible causes for a patient's problem, how to rank them based on likelihood.
4. *Diagnostic tests*: how to select and interpret diagnostic tests in order to confirm or exclude a diagnosis, taking into consideration their accuracy, acceptability and potential for harm, etc.
5. *Prognosis:* how to anticipate a patient's likely clinical course.
6. *Therapy:* how to select treatments that do more good than harm and are cost effective.
7. *Prevention:* how to reduce the chance of developing disease by identifying and modifying risk factors and how to diagnose treatable disease early through appropriate screening.
8. *Self-improvement:* how to best keep up-to-date in a way that positively impacts on your patient care/clinical practice.

SOME EXAMPLES

The following clinical questions are derived from patient vignettes. They are broken down into their four components (*See Table 1*) and mapped to one of the eight clinical areas cited earlier:

Table 1. Focused clinical questions generated from clinical scenarios below.

Patient or Problem	Intervention (a cause, prognostic factor, treatment, etc.)	Comparison Intervention (if necessary)	Outcomes
1) "In a post-menopausal woman at increased risk for developing osteoporosis and heart disease, who's mother developed breast carcinoma at age 75..."	"will long-term hormone replacement therapy (HRT)..."	"compared with no HRT..."	"result in benefits/protective effects with regard to ischemic heart disease and hip fracture, that outweigh the passible increased risk of, and resultant harm from breast carcinoma?"
2) "In an adult male with a sore throat and an intermediate pretest probability of it being a strep. throat..."	"does a negative a rapid streptococcal antigen test..."	"when compared with a throat culture..."	"adequately rule out the possibility of a strep. infection and obviate the need for any further testing?"
3) "In an 80-year-old male with severe aortic stenosis (cross-sectional area of 0.75 cm^2)..."	"does elective surgical aortic valve replacement..."	"when compared to no surgery and medical management alone..."	"potentially result in significant gains in quality of life and longevity, with acceptable risk and cost to the patient?"
4) "In a 40-year-old non-smoking male..."	"with a 10-year occupational exposure to asbestos..."	"when compared with a similar patient who has not been exposed to asbestos over a protracted period..."	"at increased risk for the development of bladder carcinoma before age 50?"

1. You are seeing a 50-year-old menapausal female for her annual physical. She is hypertensive, sedentary and a langstanding heavy smoker. She wauld like to discuss "osteaparasis" and harmane replacement therapy (HRT) but tells you that her 75-year-old mather was recently diagnased with breast cancer. During a jaint visit ta her mather's anclagist, she learned that she (aur patient) was at increased risk af developing breast cancer because af her family histary and was advised to avaid HRT as this wauld further increase her breast cancer risk. She requests your apinian in this regard – *A Questian of Therapy* (Preventian ar Etialagy might also be applicable categaries, depending upan one's clinical perspective).
2. Your patient is an otherwise healthy 35-year-old male with a sare thraat for twa days. He has na fever ar caugh and an examinatian has anteriar cervical adenapathy but na tansillar ar pasterior pharyngeal exudate. You recently read an abstracted jaurnal article fram the *Annals of Internal Medicine* that stated that rapid streptacaccal antigen tests had law sensitivity and high specificity far detecting group A beta-hemalytic streptacaccus. Yau wander whether yau shauld cansequently change fram ardering rapid streptacaccal tests and instead abtain a thraat culture – *A Questian of Diagnasis.*
3. An 80-year-old patient af yours is admitted ta the lacal hospital following a syncapal episade. He had rheumatic fever as a child and far many years has had maderate asymptamatic aartic stenasis. Echacardiagraphy reveals severe aartic stenasis with a crass sectional area af 0.75 cm^2. The cardialagist you cansulted is recamending cardiac catheterization and probable surgery ta replace the diseased aartic valve. Your patient wauld like your input as ta his long-term pragnosis should he elect not to have the surgery – *A Question af Prognasis.*
4. Yau have a male patient who is a 40-year-ald nan-smaker who was recently been diagnased as suffering fram bladder cancer and had warked from the age af 20 to 30 as a raafer with asbestas sheeting. The patient asks yau whether his accupatianal expasure to asbestas cauld have caused his bladder cancer – *A Question of Etiaiogy.*

FINDING THE ANSWERS

A subsequent article in this issue by Buchanan and Dahlen addresses strategies far efficiently finding the answers ta yaur well-built clinical questian. But

must we in fact try to answer all clinical questions which arise using evidence? One helpful strategy for determining which evidence is "worth the effort" involves answering the following questions; if all are answered affirmatively, the evidence may be described as "patient-oriented evidence that matters," or POEM.[1]

Will this information have a direct bearing on the health of my patients (is it something they care about)? Is the problem common to my practice? If true, will it require me to change my current practice?

It is estimated that only about 3% of articles found in our clinical literature meet the criteria of a POEM.[4]

CONCLUSION

Is it realistic to expect busy clinicians to actually ask focused, four-component questions and efficiently find the best evidence with which to answer them? The overwhelming consensus among proponents of EBM is that it is both realistic and feasible, but as with any new skill, it takes practice and at the outset can be frustrating and time consuming. Doing it well requires that you have insight into what you do not know, coupled with curiosity and a willingness to learn. Also, knowing how questions arise, where they come from, and how to recognize and articulate them can help you refine your skills. In other words, you can best acquire the skills by "getting your hands dirty" and doing it. Using a template and "map" listing the different types of questions and a table with columns for each part of the "well built clinical question" is a good place to start.

The focused clinical question is undoubtedly pivotal to the practice of EBM and hopefully will lead to efficient and ongoing improvements in clinicians' knowledge and performance, allow better communication with patients and more effective use of resources. The benefit for both patients and doctors is better-informed decisions.

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Useful Evidence-Based Medicine Resources

Internet Resources

TRIP Database
http://www.gwent.nhs.gov.uk/trip/
Turning Research Into Practice. (Cochrane, Bandolier, EBM, ACP Journal Club, AFP Journal Club, CAT Bank [CEBM], a variety of sites containing evidence-based guidelines.)

Bandolier Home Page
http://www.jr2.ox.ac.uk:80/bandolier/
Bandolier is produced monthly in Oxford for the NHS R&D Directorate. It contains bullet points (hence Bandolier) of evidence-based medicine.

JFP Journal Club Index
http://www.infopoems.com/
Patient Oriented Evidence that Matters. A list of all of the POEMs published in the Journal of Family Practice since 1994.

Cochrane web index
http://som.flinders.edu.au/fusa/cochrane/cochrane/index.htm
Alphabetical Index of the information in the Cochrane Collaboration web pages including abstracts of completed reviews.

eBMJ, British Medical Journal home page
http://www.bmj.com/
British Medical Journal. Complete Edition free online with lots of EBM related articles.

Primary Care Clinical Guidelines
http://medicine.ucsf.edu/resources/guidelines/
Index to primary care clinical guidelines.

CD-ROM

"Best Evidence": A combination of Evidence Based Medicine (a BMJ publication) and the ACP Journal Club. Many of these single-page abstracts, commentaries and editorials relate to primary care issues. Appraises the approximately 2% of clinical articles in the more than 50 journals screened that satisfy pre-determined scientific and clinical criteria.

Printed Material

Evidence-Based Practice: Features only POEMs - "articles about the kinds of problems you see in primary care, that use outcomes that you and your patients care about and that have the potential to change the way you practice. We avoid rat studies, premature results, disease-oriented outcomes, rare diseases, and research that confirms what you already do." http://www.infopoems.com/EBP_Home.htm

Finding the Evidence

Joel Buchanan, MD, Karen Dahlen, MLS, and Michele Matucheski, MLS

Having framed your clinical question using the principles discussed previously, you are now ready to begin your search for the answers. For physicians trained in the era of reliance on manual searching and standard text books, advances in searching for evidence are dramatic.

INTRODUCTION TO ELECTRONIC RESOURCES

New electronic resources have greatly enhanced the ability of physicians to find current evidence to answer clinical problems. These computerized resources are more convenient, more up-to-date and more easily searchable than comparable print references. Electronic resources are accessible from home or office, and physicians can search without having to go to the library. Electronic sources of evidence can be updated quickly, so the information can be more timely than that found in textbooks or even journal review articles. The power of computerized databases also allows greatly enhanced indexing of clinical reference material, compared to print resources. The two major electronic resources are CD-ROM and the Internet.

CD-ROM VS. INTERNET

Though many physicians are migrating to the Internet to locate evidence, CD-ROM (compact disc, read only memory) still enjoys popularity. This technology uses a disc similar to an audio CD to store and retrieve computerized information. Most new computers are available with a CD-ROM drive. Several excellent sources of medical evidence are available on CD-ROM. Many publishers sell material in CD-ROM format that is not available on the Internet. These CD-ROM resources can be used even if a physician does not have Internet access. Searching on a CD-ROM is faster than searching on the Internet. *Best Evidence* and *The Cochrane Library* are CD-ROM collections that are oriented to evidence-based medicine. Both resources have recently become available on the Internet and are available by subscription.

The World Wide Web (WWW) has become a ubiquitous tool for accessing electronically stored information. With a reasonable amount of effort and cost, physicians should be able to set up a computer at home or in the office to provide Internet access. On the web, information can be updated by its creators more quickly than the information on a CD-ROM. A greater volume and variety of information is available on the Internet as compared with CD-ROM discs. The WWW gives physicians more convenient access to information than does CD-ROM. Even if a physician has access to computers with CD-ROM drives at multiple locations, it will be difficult to always carry and have available the necessary CD-ROM discs when needed at home or at work.

WWW: GENERIC SEARCH ENGINES VS. SPECIFIC RESOURCES

A search engine is a WWW program which creates an index of other Web pages. A directory is a Web site with a set of organized links to other Web pages. Search engines and directories abound on the WWW. Millions of people use Yahoo, Alta Vista, and Excite daily to search the web for information. Though services like Yahoo and Alta Vista provide powerful free searching on thousands of topics, they are not appropriate for medical professionals to use when searching for evidence on clinical questions. These generic search engines and directories generally find many resources which are not helpful for clinicians, and few provide reliable medical evidence. Medical professionals should use Web resources like MEDLINE and Best Evidence that have been tailored for clinical use.

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PUBMED AND INTERNET GRATEFUL MED

Why is it important for physicians to know about PubMed and Internet Grateful Med (IGM)? Because physicians and the public now have free access to the world's most well-known medical literature database, MEDLINE, developed and maintained at the National Library of Medicine (NLM). Two web-based interfaces, PubMed (http://www.ncbi.nlm.nih.gov/pubmed/) and IGM (http://igm.nlm.nih.gov/), are now available using Internet browsers, such as Netscape Navigator. The decision for the NLM to make the MEDLINE database more easily accessible will significantly alter the way physicians practice. Prior to June 1997, many physicians had to search MEDLINE at a computer in a medical library or use a fee-based service. Now, in the comfort of the home or office, physicians can access either one of these electronic tools without using a password.

In addition to MEDLINE, NLM provides access at no cost to a variety of subject databases, such as AIDSLINE and BIOETHICSLINE. The NLM expects to add journal citations from these and other databases into PubMed and will add monographic references to its new integrated library system (ILS). The NLM recognizes that there are other online resources that might benefit its users (e.g., TOXNET, MEDLINEPLUS and the UMLS). Plans are underway to create an intelligent gateway that allows for searching multiple retrieval systems from one interface.

PubMed and IGM are two different interfaces for the same database. Features of the two interfaces are compared in Table 1. They both access the MEDLINE database and perform core functions. For example, both interfaces allow you to use natural language words, which then link automatically to a specialized index, thereby optimizing the search strategy. At both sites the search can be limited by year, or the entire database (33 years) can be searched at one time. For those who have had no experience searching MEDLINE, the PubMed layout on the screen may be easier and clearer than IGM.

The PubMed version of MEDLINE was designed to retrieve information easily and quickly and does not contain search options of the more sophisticated program, Internet Grateful Med. One significant feature for clinicians searching for evidence in diagnosis, treating, or determining risk factors, is that PubMed does contain a useful search module called "Clinical Queries." Clinical Queries, located on a sidebar of the PubMed page, is a useful tool in retrieving evidence with built-in sensitivity and specificity concepts related to therapy, diagnosis, etiology, and prognosis and automatically filters the literature. Clinical Queries should not be used to find everything on a topic. The objective of filtering is to restrict the retrieval to articles that report research conducted with specific methodologies, and retrieval will be greatly reduced. However, if relevant articles are found after filtering, they are likely to be of high validity. For example, searching the topic of selenium and the risk of prostate cancer using the three search interfaces generates the number of citations listed in Table 2.

Many physicians will find the Internet Grateful Med (IGM) search interface more powerful than PubMed. IGM allows you to easily apply filters and limits to searches. The program allows you to limit your search to English, study group (human or animal), age group (middle age 45-65 years), look at only clinical trials (publication type) and gender (male or female). It also allows you to limit your

Table 1: Comparison of PubMed and Internet Grateful Med

	PubMed	Internet Grateful Med
Access to MEDLINE	X	X
Access to AIDSLINE, AIDSDRUGS, AIDSTRIALS, BIOETHICSLINE, ChemID, DIRLINE, HealthSTAR, HISTLINE, HSRPROJ, OLDMEDLINE, POPLINE, SDILINE, SPACELINE, AND TOXLINE		X
MeSH Browser	X	X
Ability to limit searches by language, publication type, age groups, etc. using pull-down menus		X
Clinical Query Form	X	
Linkage to publishers' sites for full text journals	X	X
Can use Loansome Doc delivery service	X	X

Table 2: Comparison of number of citations retrieved by different MEDLINE interfaces.

MEDLINE Web Access	Clinical Queries	PubMed	Internet Grateful Med
Prostate cancer selenium	6	35	28*

*Search restricted to English language articles and human studies.

Table 3: Search terms ta use when seeking evidence an particular clinical issues[2]

Clinical Issues	Categary	Search Terms ta Use	
		Mare Sensitive (retrieve mare citatians)	Mare Specific (retrieve best articles)
Risk factars far getting a disease e.g. family histary, diet, smaking	Etialagy	risk	cahart study
Testing, Screening	Diagnasis	diagnasis	"sensitivity and specificity"
Treotments, Surgery, Medicotions, Devices	Theropy	therapy	randamized controlled triols
Years ta Live, Risk af Death	Prognosis	pragnasis, caurse, martality	pragnasis; survivol onalysis

search to 1 year or 30 years. The help bars attached to IGM are also educational and provide you with instant feedback. While some of the above functionality is available on PubMed in its "advanced searching" mode, it is generally somewhat more intuitive to implement with IGM.

THE SIGNIFICANCE OF VOCABULARY IN OBTAINING ANSWERABLE QUESTIONS

In the past, as a physician you may have used MeSH (Medical Subject Headings) to retrieve articles using Index Medicus or MEDLINE. The MeSH system has recently been linked to a new product called the Metathesaurus. The Metathesaurus supplies information that computers can employ to interpret user inquiries, interact with users to refine their questions, identify which databases contain information relevant to particular inquiries, and convert the users' terms into the vocabulary used by relevant information sources. The Metathesaurus is organized by concept or meaning. Alternate names for the same concept (synonyms, lexical variants, and translations) are linked together. The Metathesaurus is intended primarily for use by system developers, but can also be a useful reference tool for database builders, librarians, and other information professionals.

FORMULATING THE SEARCH QUERY

Research has suggested that certain search terms are far more efficient at finding relevant, valid evidence than others. Table 3 shows the search terms that should be used retrieving evidence related to clinical problems. Physicians should become familiar with incorporating these terms into searches.

This case involves a 50-year-old man whose father died from carcinoma of the pancreas. The patient wants to know if this puts him at increased risk of developing pancreatic cancer and if caffeine and fatty foods pose a risk. We first frame an answerable, searchable question for the case. This could be: "How much more likely is a middle-aged man to develop pancreatic cancer if a family history of the disease in a parent is present than if no such family history is present?" A second question is: "Does caffeine ingestion increase the risk of carcinoma of the pancreas?"

Table 4: Number af citatians retrieved with a standord PubMed search

Search Tool	Seorch Strategy	# af Articles Retrieved
PubMed, standard	Poncreotic cancer ond fomily histary and risk factars	13

Table 5: Camporison af search strategies within PubMed

Search Taal	Search Strategy	# af Articles Retrieved
PubMed	Poncreatic concer and caffee and *risk factors*	51
PubMed	Pancreatic cancer and caffee and *cahart study*	15
PubMed Clinical Query	Pancreatic cancer and caffee (pick etiology ond specificity buttans)	28

Let us first look at the issue of family history as a risk factor. We can perform a MEDLINE search with PubMed or Internet Grateful Med using the terms *pancreatic cancer* and *family history* and *risk factors*. This search generates 13 citations (Table 4). One citation describes a case-control study, which examines the relationship between pancreatic cancer and family history of pancreatic cancer.

Table 6: Web sites for commercial document delivery services

UnCover	http://uncweb.carl.org/index.html	UnCover is an online index and article delivery service for approximately 17,000 English language periodicals or about 7 million articles
CISTI	http://www.cisti.org/	The CISTI site answers many FAQ's and explains service in relationship to copyright and service fees. In March 1997, the average amount collected from US clients for CISTI's Direct Supply was $10.58 per document. Clients outside Canada and the US are charged copyright for Academic Press, Gordon & Breach/Harwood Academic, Springer-Verlag and Elsevier publications.
UMI Proquest Direct or InfoStore	http://www.umi.org/	UMI offers nearly 15,000 publications including journals, magazines, conference proceedings, dissertations, and government documents. Source publications range from the technical to Popular.

This study found that a family history of pancreatic cancer gives a relative risk of 3.0 (95% Confidence Interval, 1.4 to 6.6).

Next, we can look for evidence about the relationship of coffee ingestion and pancreatic cancer. We start by casting a broad net, looking for any studies that bear on coffee ingestion as a risk factor for pancreatic cancer. When we search on *pancreatic cancer* and *coffee* and *risk factors*, we retrieve 51 citations. Since we retrieve so many citations, we have the luxury of refining the search to look for cohort studies, which provide better evidence. Using the search strategy *pancreatic cancer* and *coffee* and *cohort study*, we retrieve 15 articles. This set of citations includes a cohort study of 33,976 women, a cohort study of 13,979 retirees, a cohort study of 7,355 men, and a prospective study of 16,713 Norwegians. The PubMed Clinical Queries tool mentioned above offers assistance for users who have trouble remembering the terms described in Table 3. Clinical Queries automates the focus on study methodology. The tool is accessed from the main PubMed web page. When using Clinical Queries, the user makes two simple choices: the category of the clinical issue (etiology, diagnosis, therapy, or prognosis) and the emphasis of the search (more sensitive with more articles retrieved or more specific with stronger evidence). As seen in Table 5, use of the Clinical Queries generates 28 citations, significantly more than our manual search. (In the search described earlier in this article, a search with Clinical Queries generated fewer citations than a manual search.) For this pancreatic cancer and coffee case, Clinical Queries retrieves some studies that are weaker than those retrieved with the standard PubMed search. In this particular case, the "etiology/specific" search from Clinical Query retrieved both case-control and cohort studies, thus mixing weaker and more powerful studies.

GETTING THE ARTICLE

Access through Local Hospitals

Occasionally the MEDLINE abstracts are sufficient to learn the results of a published study, but physicians will often need the full text of the article. To obtain the full text copy of an article, first contact your local hospital or clinic library. (If you don't know the name and number of your local library, call the University of Wisconsin Health Sciences Reference Desk at 608-262-2020 or send email to askchslib@doit.wisc.edu.) From your search result list, pick the citations for which you want the full text articles. Give that list to your librarian, and she/he will check the library's collection for any of the articles you requested that might be owned in-house. If the library does not own the journals containing the articles you want, she/he may use DOCLINE to obtain your articles through inter-library loan. DOCLINE is a document delivery system that allows medical libraries all over the country to share their resources.

Loansome Doc

Loansome Doc is the National Library of Medicine's method of ordering documents for PubMed and IGM users. A web link to Loansome Doc is located on the side menu bar of the PubMed web site. Before using Loansome Doc, you will need to register with a participating library to be your "ordering library." You will also need to complete the Loansome Doc registration form, which asks for contact information and requires that you create an ID code and password. Articles that you request through Loansome Doc will be mailed or faxed to you. The charge for this service ranges from $5.50 to $10 per article.

Full Text of Journal Articles on the World Wide Web
The Web provides access to o limited number of full text journols. These journols include *British Medical Journal* (http://www.bmj.com), the *Canadian Journal of Plastic Surgery* (http://www.pulsus.com/plastics/home.htm), ond the *Journal of Clinical Investigation* (http://www.jci.org/). Medscope (http://www.medscape.com/home/Journols/Medscope-journols.html) provides free occess to full text of several journals. The site requires on-line registrotion. Medscope offers occess to obout 30 health science journals, including *Clinical Drug Investigation*, the *Journal of the American Board of Family Practice*, ond *Sports Medicine Digest*.

The University of Wisconsin Heolth Sciences Libraries provides both an olphabeticol listing of electronic journals thot portiolly publish on the Web and a selective filtering of journals according to the needs of the health professional schools and special projects. These can be viewed at: http://www.medsch.wisc.edu/chslib/ejrnls/.

Commercial Document Delivery Services
In oddition to the NLM's DOCLINE and Loansome Doc services described above, commerciol vendors con provide full text copies of orticles. Three notoble document providers ore UnCover, UMI InfoStore, ond the CISTI (Conodian Institute for Scientific and Technology Information) sites. *See Table 6*. All of these delivery services are available via the web bosed on registration with the service and for a fee. Many online services want to provide your entire search and document delivery needs and lock you into subscription contracts. In choosing a document delivery service, you should consider chorging mechonisms, turnoround time, ond oreo of speciolization.

SUMMARY

Powerful new electronic resources hove greotly enhonced the obility of physicions to find current evidence to onswer clinicol questions. CD-ROM dotoboses ond World Wide Web access vio the Internet provide convenient, up-to-date, eosily seorchoble reference moteriol for procticing physicions. The MEDLINE dotobose is now ovoilable free of chorge through Internet Groteful Med ond PubMed on the Internet. Physicions can focus o literoture seorch to retrieve studies thot use methodology consistent with good medical evidence. Once the citotions ore in hond, physicions hove severol options to retrieve the full text of the relevont orticles.

For odditionol informotion reloted to Internet resources, contoct oskchslib@doit.wisc.edu.

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Understanding Clinical Study Design

Christine Seibert, MD, and Laura Zakowski, MD

You have defined a clinical question, searched the medical literature and have found articles you might use to answer your question. Now you will need to begin to sift through the articles in order to judge the evidence. The first step should be to read the Methods section of each article in order to determine the type of study design. This can be the first way to assess an article to determine if it offers the best evidence to answer your clinical question. Appraising an article includes understanding its methodology, assessing its validity, and determining how closely it applies to your individual patient. This part of the series will focus on various clinical research study designs, including the randomized controlled trial, cohort study, case-control study, case report and cross-sectional study. Table 1 is a quick reference and summarizes the information presented here.

RANDOMIZED CONTROLLED TRIAL

This study design is best suited to determine cause and effect, especially in regard to clinical questions of treatment, prevention or harm. If you are lucky enough to have found a randomized controlled trial (RCT), the evidence will likely be strong. Some important characteristics of a RCT include that it is longitudinal and therefore studies patients over time.

A RCT is always prospective rather than retrospective. When a RCT is conducted, a group of subjects is recruited, then randomly assigned to either a treatment group or a control group. While an intervention is imposed on the treatment group, the control group should be treated in exactly the same manner in all respects, except the intervention. After a period of time, the treatment and control groups are compared for outcomes. Although a RCT often gives the best type of evidence, it can be difficult to find, because this type of study can be expensive and can take years to complete.

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At any stage in the process of a study such as a RCT, unintended factors may favor one result in preference to another. This is considered bias. To avoid bias in a RCT, patients are assigned to study groups in a "double-blinded" manner, such that the investigators and the subjects know nothing about who is in the treatment group. If the study is "single-blinded," only the patients are unaware of treatment and investigators may treat patients differently depending on whether or not they are receiving the intervention in question.

COHORT STUDY

If you are unable to find a RCT to answer a clinical question of treatment, prevention or harm, the next best study design is a cohort study. When asking a question about prognosis or risk factors, the cohort study actually provides the best evidence. A cohort study is longitudinal and prospective, similar to a RCT, although in a cohort study, subjects are disease-free at the onset of the study. Any of the individuals in the study could develop the outcome of interest and are grouped according to possible risk factors, for example, smokers vs. non-smokers or high cholesterol vs. normal cholesterol. Subjects are then observed for development of disease, and it is possible to relate outcomes to initial risk factors. The most well known examples of cohort studies are the Nurses Health Study and the Framingham Heart Study.

It may be difficult to find a cohort study to answer a clinical question, since these costly studies often follow large numbers of subjects over a long period of time in order to see diseases develop and draw conclusions. Since subjects are not randomized, one of the weaknesses of a cohort study is that you may not be able to account for some of the differences between groups resulting in unintended bias. In addition, cohort studies may limit their subjects to a reliable population that may be easier to follow, such as relatively compliant nurses or physicians. Findings in these studies may have

Table 1: Summary of study designs

Study Design	Description	Best Answers Questions About:
Randomized controlled trial	A group of subjects are either treated or observed depending on a random assignment. Outcomes are measured prospectively	Treatment Prevention Harm
Cohort	A group of subjects are observed over time for development or progression of disease	Prognosis Risk factors
Case-control	Retrospective comparison of patients with and without disease	Risk factors
Case Report Case Series	Report on details of a patient or group of patients	Previously unknown or rare findings
Cross-sectional	Measurement at one point in time: a survey	Prevalence in a population

limited generalizability, depending on factors such as race and socioeconomic status of the study population compared to your patient population.

CASE-CONTROL STUDY

When asking a clinical question about risk factors, a case-control study may also provide evidence, although usually less strong. In a case-control study, a group of patients with a disease of interest is compared to a group of patients without the disease with respect to previous exposures or risk factors. The defining factor of this study is that it is retrospective, unlike the studies already described. This is less compelling evidence, since retrospective analyses may have more potential for bias. One type of bias is "recall bias," where patients with or without a disease may remember an exposure differently. A good case control study will try to anticipate potential sources of bias and adjust for them in the statistical analyses.

CASE REPORT AND CASE SERIES

When searching the literature, there are times when the only evidence to answer your question comes from a case report or case series. These are detailed descriptions of a patient or series of patients. Because by definition there is no comparison or control group, these studies, although a rich source of hypotheses, are inadequate to provide an explanation or determine a cause and effect relationship.

CROSS-SECTIONAL STUDY

One last type of study design is the cross-sectional study. Usually found as a survey or poll, this type of study measures a variable at one point in time in a sample from the population of interest. It is the best way to measure the prevalence of a disease or behavior, such as how many medical students are depressed or how many women use hormone replacement therapy. Because a cross-sectional study is not longitudinal, it is not the appropriate study to determine prognosis or causation.

EXAMPLE

To illustrate how understanding study design can be important, we offer the following example. Your hospital has prepared a guideline for the treatment of community-acquired pneumonia under pressure from the local managed care organization. The guideline calls for immediate treatment with cefuroxime plus azithromycin after appropriate cultures are obtained, among other measures. Physicians were educated and encouraged, but not required to use the guideline. Ever skeptical, the internal medicine physicians decide to test the guideline. Simultaneously, the hospital QA committee decides to do the same.

The internists reviewed charts retrospectively for six months. A group of 30 patients treated according to the guideline protocol was identified. Another group of 30 patients was identified who had been treated with "real world" decision making of the attending physician, rather than by protocol of the guideline. These groups were matched for age, sex, smoking and other obvious clinical variables. Clinical outcomes were compared and duration of hospital stay was calculated. The two groups had similar outcomes but the guideline group had 1.3 fewer days in the hospital.

The QA Committee randomly assigned patients with pneumonia to usual care or guideline care at

the time of admission. The admitting physicians were advised to follow the assigned strategy and compliance was excellent. Two groups of around 30 patients were assembled and analysis revealed that the groups were similar with respect to age, sex and other major clinical variables. At discharge, all charts were reviewed by a person "blinded" to the protocol being used. The guideline group stayed in the hospital 1.8 days longer, although the clinical outcomes were the same as in the internists' study. Which results would you trust the most? The choice of antibiotics for pneumonia is a question of treatment, so the best type of study design to answer this clinical question is a randomized controlled trial (RCT). The internists' study is a case control type and is retrospective since the patient sample was selected after the treatment was given. The sample of patients for the QA Committee's study was assembled at the time of diagnosis and treatment was assigned randomly, therefore it was a randomized controlled trial. The reviewer and the patient were blinded to the assignment, adding credence to the results. Because the QA Committee's study was the best possible evidence to answer a question of treatment, its results should be considered more seriously.

In summary, the design of a study has great impact on the trustworthiness of its results. In finding and appraising evidence, one can gain great insight by understanding different types of study design and recognizing the strengths and limitations of each.

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A Primer on Measures of Treatment Effectiveness and Diagnostic Test Performance

David A. Katz, MD, MSc

Previous articles have guided you through the identification of the clinical question, retrieval of the best articles, and appraisal of the evidence. Knowing whether an intervention works (or does not work) and understanding the performance of diagnostic tests is fundamental to clinical decision making. One obstacle to the appropriate use of the results of clinical trials and diagnostic studies is the failure to disseminate results in practical terms that are understandable and relevant to clinical practice. Part I of this paper provides guidance on how to assess treatment effectiveness in terms of relative risk reduction (RRR), absolute risk reduction (ARR), and number needed to treat (NNT) in order to prevent one additional adverse outcome. In Part II, we'll also explain the core elements for assessing diagnostic test performance: sensitivity, specificity, positive and negative predictive value, and likelihood ratios.

PART 1. MEASURES OF TREATMENT EFFECTIVENESS

Computation of Relative Risk and Absolute Risk

Let's consider the case of cholesterol-lowering therapy for prevention of coronary heart disease (CHD) events. For example, in the West of Scotland Coronary Prevention Study (WOSCOPS), 295 of 3293 (0.09 or 9.0%) of middle-aged men receiving placebo therapy (control group) had definite or suspected non-fatal myocardial infarction (NFMI) or CHD death, compared to 215 of 3302 (0.065 or 6.5%) of men receiving therapy with pravastatin (intervention group), during a mean follow-up period of 4.9 years (Table 1, row 1).[1] Comparison of outcomes in the two arms of the study can be summarized by various measures of risk, where risks are probabilities that can vary between 0 and 1.0. The relative risk denotes the *ratio* of the risk in the intervention group to that in the control group (6.5%/9.0% = 0.72). Sometimes the effectiveness of therapy can also be described in terms of RRR, which is simply 1-RR (1-0.72, or 28% reduction in the risk of CHD events for intervention compared to the control group).[1] Alternatively, the ARR represents the *difference* in risk between therapies. For example, the intervention results in a difference of 2.5% in the risk of CHD events, compared to the control group (ARR = 9.0%-6.5%= 2.5%).

In comparing two therapies, ARR provides a more direct measure of the effectiveness of therapy, which the clinician can compare to his/her threshold for changing therapy from usual to guideline-recommended therapy. In contrast, the relative risk reduction can reflect the same proportional change, regardless of whether one is comparing a decrease in risk from 0.30 to 0.05 or a decrease from 0.001 to 0.00017 (both represent a 83% RRR). Use of the relative risk measure alone ignores the important clinical distinction between a 25% versus a 0.083% risk reduction. Comparison of selected prevention trials of cholesterol-lowering pharmacotherapy[1-4] shows that the values of RRR are fairly similar, varying from 23-32%, whereas the values of ARR vary widely from 1.8% in the AFCAPS primary prevention trial to 9% in the 4S trial which included patients with established CHD (Table 1, column 5). By not reflecting the magnitude of risk in the placebo group, the RRR generally will overestimate the impact of an intervention therapy when adverse events in the placebo group are very rare (and will underestimate impact when adverse events in the placebo group are very common).[5] In addition, the use of relative risk in the communication of risk to patients can lead to significant differences in the perceived benefit (and choice) of therapy, in the absence of any absolute benefit.[6]

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Table 1. Comparision of effectiveness measures across selected primary and secondary prevention trials of cholesterol-lowering pharmacotherapy.*

Clinical Trial	Risk of CHD event Placebo	Risk of CHD event Intervention	Relative Risk Reduction RRR, % (95% CI)	Absolute Risk Reduction ARR, % (95% CI)	Number needed to treat NNT (95% CI)
Primary Prevention Trials					
WOSCOPS	295/3293=0.09	215/3302=0.065	100*(0.09-0.065)/0.09 =28 (14-39)	100*(0.09-0.065) =2.5 (1.2-3.7)	1/(0.09-0.065) =40 (27-83)
AFCAPS	194/3301=0.077	194/3304=0.059	100*(0.077-0.059)/0.077 =23 (9-37)	100*(0.077-0.059) =1.8 (0.6-3.0)	1/(0.077-0.059) =56 (33-167)
Secondary Prevention Trials					
CARE	274/2078=0.13	212/2081=0.10	100*(0.13-0.10)/0.13 =23 (9-35)	100*(0.13-0.10) =3.0 (1.0-4.9)	1/(0.13-0.10) =33 (20-100)
4S	622/2223=0.28	431/2221=0.19	100*(0.28-0.19)/0.28 =32 (23-38)	100*(0.28-0.19) =9.0 (6.1-11.0)	1/(0.28-0.19) =11 (9-17)

*For the purpose of illustration, the above estimates of RRR and ARR are based on the calculated risk of CHD events in each treatment group, where risk refers to the proportion of patients randomized to each treatment group who developed a CHD event. Confidence intervals were obtained using STATA 5.0 (epitab procedure),[i] but can also be computer manually (See Appendix, Table A.1 in Sackett reference). Our estimates for RRR and ARR may differ slightly from the corresponding published values, which were generally calculated using Cox proportional hazard models.

Computation of Number Needed to Treat

The NNT is a more intuitive way to summarize the benefit of a particular treatment, and is obtained by computing the reciprocal of the ARR for that treatment (1/ARR). The NNT is treatment-specific, and is particularly useful in comparing between treatments for a given condition or between subgroups of patients with a given condition. It has also been adapted to compare the benefits of alternative screening strategies (number needed to screen)[7] and to compare the occurrence of adverse reactions from alternative therapies (number needed to harm). In the case of the WOSCOPS trial, the NNT can be calculated as follows:

(1) NNT = 1/ARR = 1/(Pc-Pi) = 1/(0.09-0.065) = 40

where Pc and Pi correspond to the risk of adverse events in the control and intervention groups, respectively. Alternatively, the NNT can be derived from the relative risk reduction (RRR), if the risk of an adverse event in the control group is known:

(2) NNT = 1/(Pc*RRR) = 1/(0.09*0.28) = 1/0.025 = 40

Verbal interpretation of the NNT is as follows: "40 patients with hypercholesterolemia (and without history of myocardial infarction) need to be treated for approximately five years with pravastatin in order to prevent one CHD event." This can be compared to a NNT of 11 for patients receiving simvistatin over a median follow-up period of 5.4 years for secondary prevention of CHD events in patients with known CHD and elevated cholesterol (Table 1, row 4). Examination of the NNT estimates in Table 1 demonstrates that therapy with cholesterol-lowering medication becomes more effective (and efficient) as the underlying risk of CHD events increases.

While randomized controlled trials usually report NNT, case-control studies, systematic overviews and meta-analyses often only report an odds ratio (OR).[ii] The OR represents the ratio of the odds of exposure to some risk factor (or therapy) among cases with a given condition relative to the odds of exposure among controls without the condition. For example, in a meta-analysis of 33 therapeutic trials, the OR associated with thrombolytic therapy in acute myocardial infarction was 0.74 (95% confidence interval 0.51-0.92), indicating a 26% reduction in total mortality.[11] Combining this information with the expected mortality rate in control patients not exposed to thrombolytic therapy (Pc=0.15),[12] one can estimate the NNT for thrombolytic therapy to prevent one CHD death, as shown below in equation 3:[10]

(3) NNT = {1-(Pc*(1-OR))}/{(1-Pc)*Pc*(1-OR)} = {1-(0.15*(1-0.74))}/{(1-0.15)* 0.15*(1-0.74)} = 29

A potential benefit of the relative risk (or OR) formulae is that the NNT can be adjusted for the

Table 2. Number needed to treot (NNT) ocross hypothetical graups of patients with elevated serum chalesteral and varying baseline risk of CHD events.

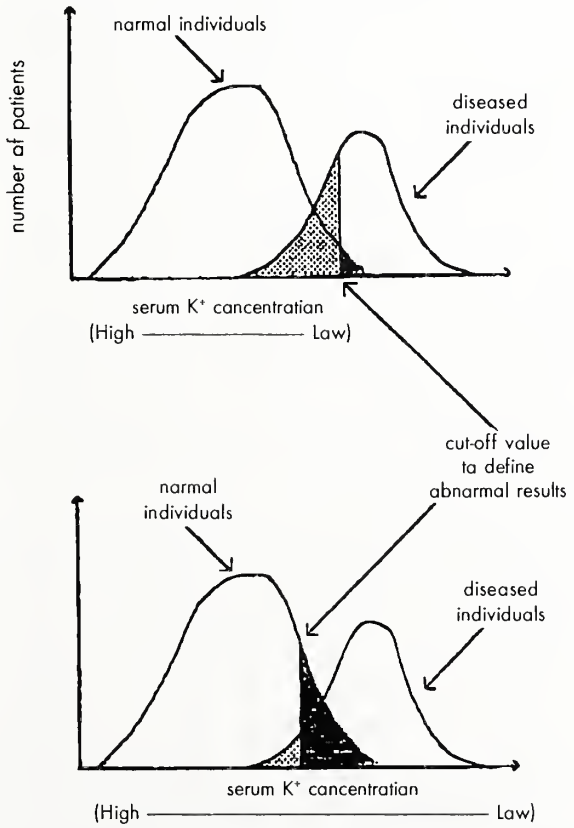
Risk graup*	Multiple cardiac risk factars	Priar CHD?	5-year risk of CHD event, %	NNT
Low	-	-	2.5	143
Intermediate	+	-	12.5	29
High	+	+	30	12

*Risk groups 2 and 3 are typified by the patients in the WOSCOPS ond 4S triols, respectively. In using formulo 2 obove to calculate NNT, we assume that the RRR remains constant acrass risk subgraups.

Table 3. Hypakalemia as a marker af Primary Aldasteranism. (T+=test pasitive; D+=disease pasitive).

	D +	D -	
T +	58(a)	4(b)	62
T -	22(c)	66(d)	88
	80	70	150

Figure 1. Binarmal distributian af test results in narmal and diseased papulatians. The effect af setting different cutaff values in detecting primary aldasteranism is shawn. A law cutaff results in a mare specific test, whereas a high cutaff results in a mare sensitive test.



baseline level of risk for patient subgroups, as shown in Table 2.[8] In using this simplified approach, a key assumption is that the RRR remains approximately constant for all risk groups, which may not always be the case. For example, in an overview of the effects of coronary artery bypass surgery in patients with stable angina, the RRR attributable to surgery was approximately 45% in both the middle and upper risk tertiles, compared to an *increase* in relative risk of 17% in the low risk tertile.[13]

While NNT is a useful, succinct measure for describing the benefit of treatment, it has certain limitations. First, the NNT is a point estimate of the average benefit for a sample of patients; it does not reflect the benefit observed for every patient. The uncertainty surrounding this estimate is important, and is typically expressed in terms of confidence intervals.[iii] Specifically, the range of likely values for NNT can be derived by substituting the upper and lower limits of the ARR into formula 1.

Second, the NNT only applies to the period of follow-up in a clinical trial. In making decisions about therapy, one might extrapolate beyond the period of follow-up in a clinical trial or cohort study with the assumption that an effective treatment shows a constant relative risk reduction beyond the actual study period. In some cases, this assumption may be justified, but in other cases, an intervention may produce a constant RRR during the first few months of treatment and no further benefit afterwards; alternatively, the RRR of treatment may gradually decrease over time (e.g., coronary artery bypass grafting for ischemic heart disease).[8]

Third, NNT is a measure that allows comparison of the frequency of benefits and harms of treatment, but does not capture the relative clinical importance of the disease-related events to be treated (or prevented). It is hard to compare a NNT of 2 for treatment of migraine with subcutaneous sumatriptan (to relieve headache over two hours) with a NNT of 166 for prevention of NSAID-related gastrointestinal bleeding with misoprostol over a six-month course. While there is no magic cutoff value which discriminates between worthwhile and useless therapy, we can get a better idea of whether a treatment's benefit is worthwhile by comparing its NNT to that of other similar interventions (preventive, acute care) with which we are familiar in medicine. Consider the following examples in cardiovascular medicine: 1) the NNT for treatment of mild-moderate

diastolic hypertension (90-109 mm Hg) to prevent one death, stroke, or MI is 128 (for 5.5 years of treatment), and 2) the NNT for endarterectomy in symptomatic moderate to severe carotid artery stenosis to prevent one major or fatal stroke over the subsequent two years is approximately 10.[10]

The choice between treatments depends not only on efficiency, as measured by NNT, but also on the values (or "importance weights") that physicians and patients assign to various treatment-related outcomes. The article by Jensen in this issue discusses this important topic in further detail. While this "semi-quantitative" approach suffices for decision making in many clinical circumstances, formal approaches (e.g., decision analysis) may be required to weigh treatments with multiple, disparate outcomes, to extrapolate beyond the time horizon considered in clinical trials, and to explore the effects of uncertainty in treatment effectiveness (and other parameters) on the choice between strategies.[15] The level of rigor should match the importance of the decision and the time frame within which a decision must be made.

PART II. MEASURES OF DIAGNOSTIC TEST PERFORMANCE

In clinical practice, clinicians continually revise the likelihood of different diseases in their differential diagnosis as they collect information from the patient and the laboratory, although this is usually a fairly subjective process. Indeed, the decision to perform a diagnostic test depends upon several factors, including 1) test availability and affordability, 2) accuracy and precision of the test in your practice setting, and 3) the value of the resulting information. In general, diagnostic tests that produce big changes from pretest to post-test probabilities are important and likely to be useful in your practice.[10]

The process of probability revision depends on two key components: 1) your prior assessment of diagnostic possibilities before you perform a diagnostic test (pretest probability), and 2) the test's ability to discriminate between patients with and without the disorder of interest. The former relies on a combination of clinical experience and use of the medical literature (sometimes supplemented by local or institutional data); for example, your institution has collected data indicating that 10% of all patients presenting to your urgent care clinic with sore throat have culture-proven Group A streptococcal infection. The latter relies on evidence from the medical literature regarding test performance (e.g., sensitivity, specificity). In the final analysis, the question that needs to be answered is whether the resulting information will change the diagnosis or otherwise effect your management of the patient. In this section, I will describe how to calculate measures of diagnostic test performance from 2x2 tables and how to revise probabilities of disease using likelihood ratios (Bayes Theorem).

The accuracy of a test is the ability of the test to discriminate between subjects with and without disease. Consider a study in which the serum potassium value was obtained for 80 patients with primary aldosteronism and 70 patients with essential hypertension. Hypothetical data from these two groups of patients can be represented as a binomial distribution (see Figure 1, top). All patients with a serum potassium level < 3.5 are defined as having an abnormal (positive) test result. This distribution of patients can be divided into four groups: a) true positives: those with primary aldosteronism who have a positive test; b) false positives: those without primary aldosteronism who have a positive test; c) false negatives: those with primary aldosteronism who have a negative test; and d) true negatives: those without primary aldosteronism who have a negative test. Figure 1 (bottom) shows the consequences of making the diagnostic cut-off value less stringent (e.g., $K^+ \leq 3.8$): specifically, the number of true positives increases at the expense of increasing the number of false positives. One can represent the data in a binormal distribution in a "2x2 Table" as shown in the following case:

<u>Case 1</u>. Real data from a study of patients with and without primary aldosteronism are shown in Table 3,[16] and can be used to calculate the operating characteristics of serum potassium as a test for primary aldosteronism, using 3.5 mEq/L as the lower limit of "normal:"

1) Pretest (or prior) probability of disease is the proportion of the total population with the disease prior to (and independent of) testing: $(a+c)/(a+b+c+d)=80/150=0.53$
2) Sensitivity (or true positive rate, TPR) is the proportion of diseased people with a positive test: $a/(a+c)=58/80=0.73$
3) Specificity (or true negative rate, TNR) is the proportion of nondiseased people with a negative test: $d/(b+d)=66/70=0.94$

Table 4. Serum potassium in a hypothetical population of unselected hypertensive patients, where D+ = 2%, sensitivity =0.73, specificity =0.94

	D +	D -	
T +	15	60	75
T -	5	940	945
	20	1000	1020

Table 5. Distribution of PSA values in men with prostrate cancer and men with benign prostatic hyperplasia (BPH)

PSA Value (ng/ml)	Cancer, N (P(CA))	BHP, N (P(BPH))	Interval LR P(CA)/P(BPH)
0-1.9	23 (.116)	52 (.278)	0.42
1.9-3.9	35 (.177)	43 (.230)	0.77
4.0-5.9	41 (.207)	39 (.209)	0.99
6.0-9.9	46 (.232)	34 (.182)	1.27
10 or above	53 (.268)	19 (.102)	2.63
	198 (1.0)	187 (1.0)	

4) False negative rate (1-sensitivity, FNR) is the proportion of diseased people with a negative test: c/(a+c)=22/80=0.27
5) False positive rate (1-specificity, FPR) is the proportion of nondiseased people with a positive test: b/(b+d)=4/70=0.06
6) Positive predictive value (PPV) is the proportion of people with a positive test who have the disease: a/(a+b)=58/62=0.94
7) Negative predictive value (NPV) is the proportion of people with a negative test who do not have the disease: d/(c+d)=66/88=0.75

The prior probability of 0.53 in this study sample is artificially high as a result of the method by which the group was assembled. Let's consider the distribution in an unselected population of hypertensive patients, in which the prevalence of primary aldosteronism is closer to 0.02 (or even less). If one assumes that the sensitivity and specificity remains constant across differing populations, then one can reconstruct the 2x2 table to provide a more realistic distribution.[iv] Given a prior probability (prevalence) of 2%, D+ = 0.02*1020 = 20 and D- = 1020-20 = 1000. Of patients with primary aldosteronism, 0.73*(20) = 15 are correctly identified by virtue of a low serum potassium level; of patients without primary aldosteronism, 0.94*(1000) = 940 are correctly identified as not having this condition by virtue of a normal serum potassium (these values are highlighted in Table 4 and the remaining cells are obtained by simple algebra).

Note that only 20% of patients with a low serum potassium have primary hypoaldosteronism (compared to 94% in the original study population). This example demonstrates that a test's positive predictive value is very sensitive to changes in prevalence and drops considerably as the pre-test probability of disease decreases. For this reason, a test that performs well in evaluating patients with signs and symptoms who have a relatively high prior probability of a disease may perform quite poorly when used for screening in an asymptomatic, low prevalence population (in that the bulk of positive test results will be "false positives.")

Likelihood Ratios

As shown in the preceding section, a diagnostic test's positive (and negative) predictive value is highly sensitive to disease prevalence, which is the reason why this parameter is not especially useful in comparing diagnostic tests. A simpler way to revise disease probabilities over a wide range of disease prevalence involves the use of "likelihood ratios." The likelihood ratio (LR), which incorporates sensitivity and specificity into a single parameter, enables one to revise disease probabilities using the following adaptation of Bayes' Theorem: Posttest odds = Pretest odds x LR.

LR (+) = sensitivity/(1-specificity) (or TPR/FPR). This ratio indicates how much more likely a positive test result is to be seen in someone with, as opposed to someone without, the condition of interest.

LR (-) = (1-sensitivity)/specificity (or FNR/TNR). This ratio indicates how much less likely a positive test result is to be seen in someone without, as opposed to someone with, the condition of interest.

To use the likelihood ratio form of Bayes Theorem, one must express the pretest probability in terms of odds of disease. Odds are simply another way of describing the chances that something will (or won't) happen:

Odds for a disease = Probability/(1-Probability)= P/(1-P)

Probability (P) = Odds/(Odds+1)

Case 2: Consider testing for recurrent or new primary colorectal cancer with stool guaiac cards among asymptomatic subjects following a previous

curative resection.[17] What impact does the results of this test have on the post-test probability of colorectal cancer?

- The prior probability of a colorectal cancer in such a population is about 0.04.
- A set of six stool guaiac cards has a sensitivity of 0.25 and a specificity of about 0.97 in detecting asymptomatic cancer (in subjects not on nonsteroidal anti-inflammatory drugs).

1) Pretest odds = P/(l-P) = 0.04/0.96 = 0.042

For a positive test:

2) LR(+) = TPR/FPR = 0.25/0.03 = 8.3
3) Posttest odds = Pretest odds x LR = 0.042 x 8.3 = 0.35
4) Posttest probability = Odds/(Odds+1) = 0.35/1.35 = 0.26

For a negative test:

5) LR(-) = FNR/TNR = 0.75/0.97 = 0.77
6) Posttest odds = 0.042 x 0.77 = 0.032
7) Posttest probability = 0.032/1.032 = 0.031

In other words, a positive guaiac series has increased the probability of cancer considerably from 0.04 to 0.26 (equation 4). In contrast, a negative guaiac series has only slightly reduced the probability of colorectal cancer from 0.04 to 0.03 (equation 7). This test is largely ineffective in lowering the probability of disease, because of the high false negative rate. While not shown here, the post-test probabilities obtained using likelihood ratios are identical to those obtained using 2x2 tables.

When one uses single cutpoints on tests that provide continuous results, one potentially loses lots of valuable data if such a test result is dichotomized. Consider the following situation:

Case 3. A 65 year-old patient with longstanding symptoms of benign prostatic hyperplasia (BPH) has a "free" prostate-specific antigen (PSA) test performed during "Prostate Cancer Awareness Week". He receives a follow-up letter that indicates that while his digital rectal examination was normal, his PSA value was 5.0 ng/ml, with a "normal" range up to 4.0 ng/ml. He brings the letter to his primary care physician, who confirms that his prostate is moderately enlarged but normal and symmetric in consistency. What is the probability he has prostate cancer? Although his test is "positive," the result is just over the cutpoint. In fact, a mildly elevated result has a different implication than a PSA of 10 or 100 ng/ml. Interval likelihood ratios can help attack this question quantitatively.

Table 5 shows the distribution of PSA results among 198 men with localized prostate cancer and 187 men with BPH.[18] For each interval, the probabilities for results within that interval were used to calculate an interval likelihood ratios (iLR).

To address the clinical question at hand, assume that the pre-test probability of localized prostate cancer is 0.05 after a normal rectal exam. We can use the iLRs in Table 5 to calculate the post-test probability of prostate cancer, as shown below:

1) Pretest odds of cancer = 0.05/(1-0.05)=0.053

For a PSA of 5 ng/ml,

2) Post-test odds of cancer = Pretest odds x iLR = 0.053*0.99 = 0.53
3) Post-test probability of cancer = 0.053/(1+0.053) = 0.05

In effect, a PSA level of 5 ng/ml does not significantly revise the probability of cancer. However, later that day, another 65 year old patient walks into your office with a PSA value of 16 ng/ml (and a normal rectal exam). Although you are nearly certain that this represents prostate cancer, you refer to Table 5 and perform the following calculation:

4) Post-test odds of cancer = Pretest odds x iLR = 0.053*2.63= 0.139
5) Post-test probability of cancer = 0.139/(1+0.139) = 0.12

Thus, although the patient's PSA level was significantly elevated, his probability of prostate cancer was still only 12%. Note that if the iLR for a particular interval is less than 1, then the corresponding probability of prostate cancer decreases (conversely, if the iLR is greater than 1, then the probability of disease increases).

CONCLUSION

Understanding the terms commonly used to quantify the results of clinical research is fundamental to the practice of evidence-based medicine, and with practice, can be incorporated into real-time medical decision making. In comparing the benefits of therapy, we recommend the use of NNT, which emphasizes the absolute benefit of therapy, rather than relative risk reduction (RRR). In evaluating the utility of a diagnostic test, we advocate the use of likelihood ratios to determine the impact of a positive or negative test on the probability of disease. With regard to the latter, the reader should be aware of

methodological issues pertaining to the use of literature data on diagnostic testing, including the lack of a perfect gold standard, verification bias, and spectrum bias, which are discussed further in this issue (see "Appraising the Evidence" p. 44) and in the text by Sox et al.[19] Much work remains to be done to improve the accessibility of information on pre-test probabilities of disease and likelihood ratios through local and international databases, such as the fledgling databank created by the National Health Service Centre for Evidence-Based Medicine at Oxford (see http://cemb.jr2.ox.ac.uk). Similar approaches are now being used in computer-based decision support systems such as ILIAD, developed by the University of Utah, which includes likelihood ratios for the major tests used in working up several hundred diseases. Meanwhile, through the use of existing resources, many opportunities lay ahead for the clinician who is interesting in incorporating EBM principles into daily practice.

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APPENDIX

i. Our calculated RRR of 28%, which is computed directly from the data in Table 2 of the WOSCOPS manuscript, differs slightly from that reported by the study investigators (29%), which is calculated using a Cox proportional-hazards model and accounts for the fact that follow-up was incomplete for all subjects.

ii. Choice of which formula to use depends on how results are presented; sometimes event rates in two groups are compared in terms of relative risk or odds ratios. Useful nomograms to calculate NNT based on either relative risk or odds ratios (without cranking through the above formulae) have been described.[8-10]

iii. Confidence intervals are used to estimate the range of values that includes a specified proportion of possible NNT values (e.g., the true population mean of NNT will lie within 2 standard errors of the mean of sample means 95% of the time).[14]

iv. This assumption may not always be justified, because of spectrum bias; that is, if the study population is restricted to very sick patients (or well patients), sensitivity of the index test may be inflated (or deflated) compared to what would be expected in a representative population with the full range of disease severity.

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Appraising the Evidence

Richard Gross, MD, FACP, and Dean R. Keller, MD

The process of appraising a research article is both important and complex. Many practicing physicians feel that they have neither the time nor the knowledge necessary to do so. Yet many articles in medical journals report findings which are either anecdotal or invalid, and it is undesirable to base patient care decisions on such fallible "evidence."

There are two general strategies the physician can use to increase the likelihood that the evidence is trustworthy: relying on the editors of the journals to do the filtering for you, and performing the appraisal yourself.

RELYING ON THE EDITORS

While the quality of editorial screening is improving rapidly, there remain many deficiencies in the quality of medical literature. Reputable journals in many specialties have begun to apply more rigorous appraisal criteria. If you rely on this method, it is recommended that you determine the criteria the editorial board is using and judge whether those standards are sufficient for your purposes. Even if you rarely appraise an article yourself, it is important to understand the process so you can "appraise the appraisers" from time to time.

An exciting trend in editorial policy is the emergence of journals whose *raison d'etre* is the critical appraisal process itself. These journals screen other journals, selecting only the highest quality research; they then subject the candidate articles to an explicit and rigid series of tests of validity and applicability before publishing them. Finally, they often include an expert commentary along with the original article to provide additional perspective. Examples of this type of journal include the American College of Physicians' *ACP Journal Club* and *Evidence-based Medicine*. The Cochrane Collaboration (recently available on both CD-Rom and the Internet) is another source of excellent, appraised evidence on therapeutic trials. If you are fortunate enough to find relevant evidence in one of these sources, chances are it is valid.

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DOING THE APPRAISAL YOURSELF

When evidence is not found in one of the highly selective journals like those mentioned above, you should be prepared to perform it yourself. Fortunately you do not need to be a content expert or biostatistician to perform a critical appraisal. In fact, medical students do so routinely.

The evidence-based medicine movement, largely originating at McMaster University in Hamilton, Ontario, has distilled the process down to a series of steps which any thoughtful practitioner can follow. The details of the process can only be mastered with further reading and practice (e.g. through local journal clubs) but, much like any aspect of medicine, can be acquired with a reasonable effort. The remainder of this article will introduce the major components of a critical appraisal: validity and applicability. The concepts discussed herein are closely based on the references to which the interested reader is referred for in-depth learning. The emphasis here is on making the process accessible for busy clinicians.

STEPS IN CRITICAL APPRAISAL OF CLINICAL RESEARCH

Critical appraisal includes these steps:

1. Assess validity (primary criteria and secondary criteria).
2. Understand the core results.
3. Assess applicability to your patient.

Step 2 is addressed by Dr. Katz elsewhere in this issue. We discuss appraising validity and applicability below.

DETERMINING THE CATEGORY OF THE EVIDENCE

Since the "checklist" you will follow in appraising an article varies with the category in question, you should first determine the category which best applies: treatment or prevention; diagnostic testing; risk or etiology; or prognosis. Additional categories not addressed in this article include decision analysis, cost-effectiveness, and systematic reviews. In the interest of clarity and brevity we shall focus on treatments and tests; the reader is encouraged to read about the analogous approach to other categories of evidence.

VALIDITY

Validity is the extent to which a research study measures what it purports to measure. That is, if it claims to measure the effectiveness of a treatment, it should not be contaminated by interfering factors which affect disease outcomes quite separately from the treatment. Examples of such confounding factors for treatment studies include discrepancies in the severity of disease between the treatment and control groups (advanced disease in the control group and early disease in the treatment group) and differences in their risk factors to begin with (more smokers in one group than in the other). Similarly, in the case of a diagnostic test, the researchers should eliminate interfering factors such as failure to perform the gold standard test on all patients or studying a population which represents only a narrow spectrum of patients in whom the test will generally be applied. While each category of article requires its own validity criteria, certain principles apply to all. In the case of validity, all categories include "primary" guides (the ones most important for the busy practitioner) and secondary guides (for additional appraisal of articles which meet the primary criteria). Primary guides are "show stoppers:" If an article fails to meet them, it should not be considered valid; in that case you may wish to search further for valid evidence or accept that none exists. You should *not* conclude that invalid evidence should be relied upon since it is all you have.

Secondary guides help you identify deficiencies in the article which may compromise its validity. It is left to you to decide how important such deficiencies are to your patient. You may wish to rely on the evidence as the best available if the deficiencies are not crippling in your judgment. Naturally, an article meeting all primary and secondary criteria is the strongest of all.

If articles are found which seem contradictory but of similar validity, look at their study design as discussed by Seibert and Zakowski in this issue – certain designs are more powerful than others and this information may guide you.

APPLICABILITY

Applicability refers to the extent to which the results of a valid study will predict the results in your patient; it is a measure of how closely your patient resembles those in the study. Note that this encompasses at least two components: clinical and non-clinical. Clinical issues refer to specific factors related to the severity and duration of disease, specific risk factors, and so on. Nonclinical factors include demographics, general lifestyle, and ethnic background and similar universal traits.

To illustrate how to use the critical appraisal guidelines, let us examine those listed for evidence about two of the most commonly encountered categories, diagnostic tests and treatments. While these two categories are the focus of this article, the reader should be aware that similar processes exist for many other types of evidence, including etiology, decision analysis, systematcic overviews, and prognosis.[2,4-7]

DIAGNOSTIC TESTS: PRIMARY VALIDITY

Criterion: Was there an independent blinded comparison with a gold standard?

Almost all tests must be judged against some incontrovertible standard which defines the disease in question. The gold standard test may be impractical for widespread use, but it should be definitive by the current state of the art. Often it will be a biopsy or other invasive or expensive test. A valid study must not be selective in applying the gold standard to its subjects; if not all subjects undergo the gold standard test, how can we know the true disease state of those who did not? While a few omissions may not undermine the results entirely, careful statistical tools should sort this out under the most conservative range of presumptions. Worst of all is applying the gold standard predominantly to those subjects who had abnormal results on the test being studied (e.g. catheterization for patients who had abnormal exercise tests while those whose exercise tests were normal did not undergo catheterization – a poor design to determine the sensitivity of exercise testing for coronary disease).

The gold standard and study test should be administered by individuals with no knowledge of the patient's clinical or prior testing status, since such knowledge may inadvertently affect the performance or interpretation.

Criterion: Was the patient spectrum appropriate?
The "power" of a test may vary considerably from one population to another. This is a factor not only of the prevalence of the disease within that population, but of the traits of the population itself.
Consider a hypothetical blood test for malignant melanoma. In patients with metastatic disease, the likelihood ratio of the test may be very high. In demographically identical patients with localized disease, this evidence may not be applicable or valid. Examine your evidence to be sure that the group studied is reflective of the patient to whom you will apply the results in terms of stage of disease, presence of potentially confounding conditions, and so on.

If the answer to both of the above criteria is "no," it may be time to move on to other evidence. If your article meets the primary validity criteria, it should be examined for additional criteria which might be termed "secondary." While secondary criteria need not always be met as a condition of acceptability of the evidence, they will help you form a judgment as to whether the evidence is valid for your patient.

DIAGNOSTIC TESTS: SECONDARY VALIDITY CRITERIA

Criterion: Was the gold standard test done independent of the result of the index test?
The stress test example above illustrates this principle; to the extent that any subject does not receive the gold standard test the study is weakened. In many studies a few subjects drop out or are otherwise unable to receive the gold standard test. As long as the number of dropouts is small enough, this may not be a fatal flaw; statisticians have methods for accounting for these drop-outs. See that they are addressed explicitly in the results section of the article. Even if you do not understand the statistical methods, you can ascertain whether the authors were aware of this factor and allowed for it in their conclusions. Be especially cautious when any non-universal scheme is used to determine who gets the gold standard – this is a recipe for trouble.

Criterion: Was the test described explicitly enough for you to reproduce it locally?
The methodology of certain diagnostic tests or procedures can be sophisticated and highly technical. You should determine at the very least that the same test or its equivalent is the one used in your community, checking with colleagues if necessary. The burden is generally higher with new procedures and techniques, and where subjective interpretation is operative. Interpretation of images by physicians is an area deserving special attention.

DIAGNOSTIC TESTS: APPLICABILITY CRITERIA

If your appraisal indicates that validity is acceptable, your next task is to determine if the study applies to your patient.

Criterion: Is the test practical in your locale, or otherwise accessible to your patient?
Numerous community-specific issues arise here, and your judgment should be focused on whether this test, however valid, is a reasonable option. If not, is it worth sending the patient or specimen to a reference lab. Avoid the trap of determining that a test is valid, then doing a different (but perhaps similar) test because it is the only one available locally. The evidence from the one should not be applied to the other. Example: performing a CT scan based on evidence pertaining to MR scans.

Criterion: Were the study patients comparable to your patient?
A useful technique is to determine whether your patient would have been eligible to enter the study if it were done today. If so, it probably does apply to your patient. If not, your judgment should determine whether the excluding criteria are clinically and biologically important. Example: a study on the use of venous Dopplers included healthy, non-obese women from age 30 to 50. Your patient is 52 years old; you judge that this is unlikely to be an important factor and elect to apply the results to your patient. On the other hand, if your patient was 60 years old and massively obese with a history of deep vein thrombosis in the past, you should be hesitant to apply the evidence.

Criterion: Might the results justify a change in management?
A test may be valid and applicable to your patient, yet still not be wise to do. Perhaps its results are not strong enough for you to change your initial therapy decision; perhaps there is no treatment available to

offer even if the result were positive. Example: a patient with typical angina may not benefit from an exercise stress test since you would refer for catheterization based on your pre-test suspicion even if it were normal. An MRI of the knee can detect osteoarthritis at very early stages; you may choose not to do it since you have nothing to offer the patient based on the results beyond what you have already done.

TREATMENTS

Let us examine the criteria for evidence about treatments.

Treatments: Primary Validity Criteria

Criterion: Were patients assigned to the treatment or control groups in a random fashion?

Lack of randomization is a powerful obstacle to obtaining valid results. Human nature is such that even the most sincere investigator is vulnerable to "favoring" one group over another in subtle ways if an opportunity presents itself during the assignment process. Techniques such as using zip code, site of enrollment, and primary doctor may all affect the outcomes in unintended ways. A true randomizing technique such as using computer-generated numbers or lottery results is best.

Note how this differs from "blinding" (another important issue discussed below): it applies to initial assignments and not to ongoing awareness of which group they are in. The goal is to achieve complete parity in the known and unknown variables present in each group; any non-random technique allows for the fact that some important variable may bias the results.

Criterion: Were all patients accounted for at the end in their originally assigned groups?

If patients are allowed to start out in one group and switch to the other, the validity of the study is weakened. If patients in the treatment group develop side-effects and are switched to the control group, this can profoundly affect the results (and it breaches the "blinding" process). Look for "intention to treat" designs in which a patient assigned to the treatment group is analyzed as a treated patient even if they discontinue treatment. Be cautious of any study in which crossing over is present. Example: a study compared medicine to surgery for diverticulosis. Several patients in the medicine group failed to improve or developed side-effects, so they were switched to the surgery group and analyzed as "surgical" patients. The study cannot be considered valid – it is not known what their outcomes would have been without surgery, whether patients resistant to improvement with medication represented an important subgroup with different response rates, and so on.

While this is considered a primary "show stopper" criterion, if only a small number of patients cross over or are entirely lost to follow-up, the validity might remain acceptable. One way to see if the cross-over rate is acceptable is to look at all such patients as though they did "poorly" or, by contrast, as though they all did "well; if the conclusion of the study is sustained despite such "worst or best case" presumptions, the results may be considered valid. Generally, however, alteration of initial group assignment is a major flaw.

Treatments: Secondary Validity Criteria

Criterion: Were patients and researchers all blinded?

Check that patients, researchers, and all participants responsible for measuring or interpreting results were naïve as to which group the patient is assigned. Sometimes, the treatment is such that one cannot accomplish blinding (e.g. a major surgical procedure). In these cases you must judge whether the outcomes measured could feasibly have been affected by loss of blinding. If so, be reluctant to accept the results. On the other hand, if the outcome measured is one with no plausible connection to awareness of the mode of therapy, you may choose to accept this limitation. Example: a placebo is compared to an active pill for relief of a painful condition; it would be very difficult to separate the placebo effect from a true benefit if patients knew which tablet they received, and side-effects would be equally difficult to quantify. Another example: the radiologist interpreting chest x-rays is aware of which films are from patients who received the active antibiotic versus the placebo; she unconsciously "looks a little harder" or interprets subtle findings a bit more stringently with the belief that the placebo group will be more likely to have an infiltrate.

Criterion: Were the groups similar at the outset?

If group assignment was random and the groups are large enough, it is likely that they will be comparable in all ways. However, due to faulty randomization or chance alone there may be differences. The researchers should always describe the study groups regarding all possibly important traits. If important

differences exist, the validity may be in question. Example: a new treatment for pancreatic cancer seems to prolong life by 2 months; in looking at the study it turns out that the treatment group had a mean time since diagnosis of 2.3 months while the control group's mean was 4.1 months. The survival difference may be due solely to lead time differences.

Criterion: Were the groups treated comparably other than the index treatment?
Researchers should describe the overall management of all groups for each important interventions besides the studied treatment. Perhaps one group received an incidental intervention more often than the other, and that confounding intervention affected the outcomes. Example: a cholesterol drug decreased five year mortality from 5% to 3%. Retrospective review later showed that the placebo group drank 1.9 glasses of red wine a week; the treatment group drank 4.2 glasses. How can we know which "treatment" truly generated the difference in mortality?

Treatments: Applicability Criteria

Criterion: Are the patients like mine?
The comments under the same Diagnosis criteria apply to evidence about treatment.

Criterion: Were all important outcomes considered?
A study looking at mortality alone may show an important benefit. If, however, a non-fatal outcome of importance is not addressed the results and conclusions are based on incomplete information. Example: if a new anticoagulant reduced the rate of sudden death in the year after a first myocardial infarction but failed to address the rate of severe stroke or hemorrhage, you should reserve judgment about using the results. This is a common "letter to the editor" issue, so check a few later issues of the journal for possible follow-up evidence.

DO THE BENEFITS JUSTIFY THE SIDE-EFFECTS?

This is a major focus of decision analysis, and a detailed discussion exceed the scope of this article. In summary, you should weigh both the frequency and importance of the improvements which the treatment generates, and also those of the side-effects it causes. Allow the patient to determine whether the trade-offs are acceptable. This is an issue which requires a synthesis of evidence (frequency of events) and personal preference (how good or bad an outcome is in the patient's life).

CONCLUSION

Critical appraisal of medical evidence can be performed by any motivated physician. Simple checklists exist to guide the process. Once such checklist can be found in the "EBM Roadmap" elsewhere in this issue. Rather than blindly accepting everything in print, you can thoughtfully select those articles which are most likely to contribute to the best outcomes for your patient.

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How Evidence-Based Medicine Incorporates Patient Preferences

Norman Jensen, MD

INTRODUCTION

Wisconsin Statutes require physicians to inform patients of the benefits and risks of all possible treatments including no treatment.[1] What a challenging standard this is! One wonders how well the lawmakers understand the time-pressured environment physicians work in. And one wonders how well lawmakers understand how frequently complex and emotion-filled are everyday diagnosis and treatment decisions. A standard high-quality patient encounter requires us to accomplish several complex tasks. These include proper introductions, optimal patient comfort, an elicited and negotiated agenda, a detailed history of illness, acknowledgement of suffering, physical examination, requests for and interpretations of tests, an agreed upon diagnosis, patient informing of all possible treatments including risks and benefits of each, elicitation of patient values for various outcomes, answers for all questions, a facilitated choice of treatment, initiation of treatment, and arrangements for follow-up visits, calls and paperwork.

Accomplishing all this within ever-decreasing time limits per patient encounter is challenging, but equally challenging is the reality of growing numbers and complexity of testing and treatment alternatives, each with several possible outcomes of varying likelihood – in addition to the time challenge, it is intellectually challenging for doctor and patient to fully comprehend the alternatives in a typical conversational encounter. On the other hand, we understand patients not only wish to participate in decision-making (without diminishing the doctor's problem solving role),[2] but also benefit from it in terms of satisfaction with care,[3] stability of patient-physician relationships,[4,5] and improved outcomes such as blood pressure and glucose control.[6] Part of the answer must surely be improved discipline and efficiency in facilitating patient activity in comprehension and valuing outcomes of their medical care choices.

What are we aiming for? One definition of disciplined medical decision making is "an imaging technique for visualizing medical logic.[7]" However, because patient attitudes toward morbidity are critical to their choices, because survival is usually not their only consideration, and because such attitudes vary enormously from patient to patient,[8] we will amend the definition to say, "an imaging technique for visualizing medical logic and patient preference." A good decision analysis then boils down to a robust measure of the patient's expected values for various choices that aims to minimize bias introduced by significant others (friends, family, doctors, nurses, researchers) or data from groups of individuals (such as clinical trials). The physician becomes not the decision-maker but a decision-maker in a collaborative relationship. Although areas of expertise overlap, the physician surely offers expert knowledge of medicine and human nature. The patient offers expert self-knowledge of values, preferences, and potential effects of various outcomes on self and family. How then, are patient values incorporated into a formal or mathematical decision model?

ELICITING PATIENT PREFERENCES

Based substantially on personal values, patient preferences are elicited and transformed into "utilities."[i] Mathematical modelling requires "utilities" to be unit-free numbers that represent the relative magnitude of difference between outcomes, and an equivalent of a real quantity such as survival time or money. The numerical range for "utilities" is conventionally set from "0" (the worst possible outcome) to "1" (the best possible outcome). The reason for this arbitrary, unit-free numerical assignment is to enable a "utility" to be multiplied by its "probability" (also a

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"0" to "1" expression), with the result being the "expected value" of that outcome, i.e.,

Utility of Outcome X Probability of Outcome = Expected Value of Outcome

The subsequent article in this issue by Gross and Jensen provides further detail about how these numbers are used in decision analysis. For this discussion, it is sufficient to understand that placing a numeric value on the patient's preference can provide a powerful tool for helping them make a complex medical decision.

How do we elicit patient preferences in the medical interview? There are at least four methods to elicit patient preferences in dialog with the patient. All of them incorporate a listing of each important outcome of a scenario, and a ranking of the list from best to worst. The best is assigned a value of "1," for example, survival to life expectancy free of symptoms. The worst is assigned the value "0" (for example, death in the near future). In the simplest situation, the patient is asked to make a value judgment about where the intermediate outcome "fits" between the best and worst outcomes.
In more formal analyses (and where the decision is critical), a more systematic approach can be used to expedite the ranking process. The patient is usually presented with successive choices between the intermediate outcome on the one hand, and varying probabilities of the best versus worse outcomes on the other hand. When the patient is unable to decide between the two, the "toss-up" probability of the best outcome becomes the utility for the intermediate outcome. Let's use an example.

Earnest John is having a difficult day! Yesterday was his 70th birthday. His family toasted his 70 years of good health and wished him many more. He wonders what news he's about to get about his prostate biopsy done three days ago. He recalls how this began with a difficult decision to do PSA screening. He liked how his physician clearly explained the important outcomes of testing and elicited his preferences with patience and empathy. It didn't make the decision easy, only easier. His strong and life-long preference for knowing his situation (prognosis) pushed the decision toward screening and then, a decision for biopsy for a PSA of 8.1.

"Earnie, we have another tough decision to make. Are you ready?"

Table 1

Outcome	Patient Utilities
14 years current health	1.0
Erectile dysfunction	.8
Anxiety about cancer growth	.7
Urinary incontinence	.6
Cancer death at nine years	.3
Surgical death	0

"Yes, I think so."

EJ's doctor asks him to choose between radical prostatectomy and no therapy ("watchful waiting"). They decide on a list of important outcomes for each scenario. EJ's best possible outcome would be to live out his life expectancy (~14 years) in his current healthy state (utility = 1), and his worst outcome, death in the near future (utility = 0) so that he'd not see his grandchildren grow up. Now they must estimate the utilities for the intermediate outcomes: erectile dysfunction and urinary incontinence in the case of radical surgery, and anxiety and dying from cancer after nine years in the case of watchful waiting. Table 1reports the results of the utility discussion between EJ and his doctor.

The lottery or standard reference gamble method presents the patient with a sequence of scenarios involving chance events. Say he is asked to choose between these two options:

1. Certainty of living 14 years with urinary incontinence or
2. 5% chance of living 14 years in good health and a 95% chance of surgical death.

He quickly chose number 1, 14 years with incontinence - the intermediate outcome whose utility we are estimating. Now the same choice is given, but the percentages in option 2 are changed. In each successive choice, the chance of living 14 years in good health is increased (and the chance of surgical death is decreased) until the patient is unable to choose. EJ found it "too close to call" when the choice was:

1. Certainty of living 14 years with urinary incontinence or
2. 60% chance of living 14 years in good health and a 40% chance of surgical death.

We infer his utility for urinary incontinence is 0.6, 60% of his best possible outcome. The same process was used to determine utilities for erectile dysfunction,

anxiety, and cancer death at nine years. Though cumbersome for routine use, this standard gamble technique is generally considered the most reliable method to estimate intermediate utilities. If you are thinking that his choice felt "wrong," you are experiencing the very essence of what utility means: it is only correct for the patient in question – there is no right and wrong value.

For people who have difficulty with the abstract concept of probability of an event (that is, those who generally believe events either happen or do not), the next method, "time trade-off," may be helpful.

The time tradeoff method would present EJ with choices between duration of outcomes rather than probabilities of outcomes in the lottery method. For example, we ask EJ if he would prefer 14 years of his current state or 14 years of urinary incontinence – he quickly chooses 14 years of good health. We then asked EJ to choose between 13 years in his current state or 14 years of chronic urinary incontinence, and he again quickly chooses 13 years of good health. Each successive choice reduces the time in good health until EJ cannot choose, implying that to him, the two are equivalent. EJ became unable to choose between chronic urinary incontinence and eight years of good health. The utility is then calculated as 8 / 14 = 0.57, or 57% of his best possible outcome. This is close to the result we got using the standard gamble method above, and for all practical purposes, equivalent.

LIMITATIONS OF FORMALLY ELICITING PATIENT PREFERENCES

Sometimes patients resist or are unable to cooperate with the process of eliciting their preferences. "Measuring preferences for length of healthy life is difficult because the patient must think about almost unimaginably disagreeable choices. ... Treatment decisions become truly challenging when the decision maker must compromise one dimension of outcome in order to maximize another.[9]" People sometimes find the necessary concepts distasteful, frightening, or alien to their world view. Some believe control is all external and choices are irrelevant, e.g., God's will determines all. Some believe talking about something makes it more likely to happen. Some cultures require delegation of decision making to the family who then become surrogate decision-makers. Obviously, intellectual ability must be present in both the patient and the doctor, but few in either category fail this.

Even when a patient cooperates, care is required to elicit internally consistent responses from a patient that represent their true preferences. The doctor must try framing or wording questions in a value-neutral fashion to assure consistent patient responses. If the patient understands probability poorly, use alternate language like "odds" or physical representations such as coin flips or blindfolded drawing of one (or more) red balls out of a jar with 99 white ones. Attitudes toward "gambling" may predispose a patient toward reactive responses such as risk avoidance or risk seeking; these people may need a consumer's "three days to change their mind" and then repeat the exercise. And finally, preferences are a special case of "attitudes" which social psychologists have observed to be highly context sensitive, and therefore, since contexts are always changing, preferences normally vary over time.

DISCUSSION

Readers may question just how practical and important it is to achieve a quantitative estimate of patients' values and preferences. The subsequent article on decision analysis will address this in some detail, but some general points are offered below.

One possible benefit to a more explicit approach to patient preferences is that of improved compliance. Studies of patient refusals to follow medical advice have found much patient dissatisfaction with their understanding of the recommended procedures and treatments, feeling excluded from the information loop, and distrustful of the medical care system.[10,11] A controlled clinical trial of decision analysis was done with 1,280 hospital doctors who were advised to get Hepatitis B immunization. Those hospital doctors advised on the basis of individual decision analysis including patient preferences were 39% more likely to be screened or immunized than the group receiving only general information about harms and benefits, and a third group receiving no special information.

A second benefit is that such a process frees you from the inadvertent imposition of your own values upon your patient. Consider the example of Earnest John and his decision about treatment of prostate cancer: if you felt differently about the toss-up decisions described, your decision may have been

different from his. Whose life value system should be used for such decisions – yours or that of the patient who will live with the consequences?

Finally, consider a situation where, despite best medical practices, the outcome is poor. No doubt, it will be much easier for you and your patient to accept the outcome knowing that you carefully determined and accepted your patient's personal preferences.

CONCLUSION

The law of the State of Wisconsin and the best practices of medicine both call for careful elicitation and acceptance of a patient's preferences, even though we may not agree with them. Choices among diagnostic and treatment options continue to get more complex. Whether used formally or informally, the disciplined methods of eliciting patient preferences offered here are recommended for any medical practice that strives for improved patient and doctor satisfaction as well as improved outcomes of medical care.

ENDNOTE

i. The term "values" is sometimes used interchangeably with "utility" in the literature and this can be confusing. In this essay, "values" refers to the weighting or importance that a particular patient attaches to the various aspects of an outcome. For example, Earnest John "values" urinary continence more than he values some extra years of survival. He may need some help in estimating "how much" he values continence relative to survival.

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Using Evidence to Make Decisions

Richard Gross, MD, and Norman Jensen, MD

The evidence is in; you have deemed it to be valid and applicable to your patient and with your guidance, the patient has judged the subjective impact of the various side-effects and potential benefits of the available treatments. You are now left to make the best decision: should you perform the diagnostic test, proceed directly to treatment without bothering to test, or perhaps just observe without testing or treating?

Rigorous dissection of a clinical scenario for purposes of decision analysis is not often explicitly performed. Yet we do elements of such an analysis subconsciously for nearly every patient we see. Under the guise of experience or intuition, we weigh each of the above components and make a recommendation. This process is the core of medical decision analysis. This discussion will introduce you to its concepts. It is a fitting conclusion to this issue since it is where the evidence-based medicine process comes together. Here are some questions which decision analysis can help answer.

WHEN IS A TREATMENT THE BEST STRATEGY?

In the context of decision analysis, one generally reduces decisions to probabilities. That is, a given decision leads to a given outcome at a predictable rate. These rates can be calculated with some precision but, as with all probabilistic tools, this does not predict the outcome for an individual patient with certainty.

Everyday examples will clarify the above statement. If you flip a coin 10 times, you will probably obtain half heads and half tails. The likelihood of actually obtaining "5 and 5" on any given series of 10 flips is rather low, but sequences of 10 flip blocks might come out 6:4, 5:5, 7:3, 4:6, 5:5, etc. If you counted 10,000 flips, the numbers would almost certainly converge toward 5000:5000. Now, expand the reasoning to a casino game where a container contains 51 black marbles and 49 white ones. If you were advising a gambler which color to bet on if one marble were randomly drawn, you would always advise black. You know very well that you would be wrong many times, but you would be confident that your advice was correct. So it is in medical decision making: your goal is to be certain your advice is correct, though rarely can you be sure of the outcome.

As described by Jensen in the previous article, medical decisions entail not only the likelihood of an outcome, but also its impact on the quality of life *as determined by the patient.* With this in mind, let us define harm and improvement in a manner which can be applied to decision analysis.

Treatment is the best course of action when its *harm* is exceeded by the *improvement* it brings. "Harm" and "improvement" entail both the likelihood of certain outcomes and their utilities (subjective importance) for the patient. Harm, in this context, refers to the adverse outcomes (side-effects) of a treatment independent of its benefits; that is, the adverse outcomes in someone who is perfectly healthy and thus has no potential for benefit.

Improvement refers to how much better a patient with disease will do with treatment compared to their course without treatment. Like harm, improvement entails both the *likelihood* of improvement and its utility.

In decision literature, one also encounters the term "benefit." Usually this means the net result of the two concepts discussed above: it is improvement less harm, that is, the net benefit after all factors are considered.

THE ACTION THRESHOLD

Two ways of stating when treatment is the best decision are:

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1. when the ratio of Harm:Improvement is less than 1
2. when net benefit is greater than 0.

Much of formal decision analysis revolves around this idea. Of interest is that the Harm:Improvement ratio in line 1 also happens to reflect the likelihood of disease above which treatment is the best decision, and below which it is best to withhold treatment. This value is called the Action Threshold (AT) for that particular treatment-disease scenario, and is valid for the utilities of the patient at hand. AT weighs the risk of inadvertently treating patients who do not have the disease in question against the benefit which will accrue to a known percentage of patients who do have the disease.

WHEN IS A TEST WARRANTED?

When a diagnosis is certain, any treatment with an Action Threshold below 1 (100%) is a good idea – it will bring about more improvement than harm (considering both frequency and utility of events). No testing is necessary or useful. The lower the AT the better, but any value below 1 would still warrant treatment as the best course of action. This is equivalent in the analogy of betting on drawing a black marble rather than a white one, when the ratio if 51 black to 49 white. You would rather have 99 black and 1 white, but either way, black is the bet to make.

WHEN THE DIAGNOSIS IS UNCERTAIN

When the diagnosis is *uncertain* (its likelihood is less than 1), things get a bit more complicated. There are two stages at which we assess diagnostic likelihood: before we test (our pre-test estimate) and after the test result is known (post-test likelihood). Say a treatment has an AT (as probability) of .5. This means that if we are more than 50% confident that the diagnosis is present, treatment would be the best decision. If our pre-test estimate is 20%, our inclination would be to withhold treatment. However, if we have a test available which could increase our likelihood of the diagnosis to 51% if it were positive, it may be worth testing since it could change our mind.

Conversely, if the test would only increase our likelihood to 49% if it were positive, we would do nothing differently for having tested: we would withhold treatment based on our pre-test estimate, and we would still withhold treatment if the test were positive since our disease likelihood remains below the AT. In other words, the test has no decision value. Analogous situations exist where our pre-test estimate is *above* the AT – if a negative test result would bring our post-test likelihood down below the AT the test has value; if even a negative test would leave our estimate above the AT the test has no decision value. Thus, a test is warranted when its results would revise our estimate of the likelihood of disease in such a way as to change our mind about whether or not to treat.

TO SUMMARIZE:

If your pre-test likelihood is above the Action Threshold and testing has the potential to change your likelihood to one which is below the Action Threshold, you should test.

If your pre-test likelihood is below the Action Threshold and testing has the potential to change your likelihood to one which is above the Action Threshold, you should test.

If your pre-test likelihood is above the Action Threshold and testing lacks the potential to change your likelihood to one which is below the Action Threshold, you should treat without bothering to test.

If your pre-test likelihood is below the Action Threshold and testing lacks the potential to change your likelihood to one which is above the Action Threshold, you should just observe (or provide nonspecific symptomatic treatment only).

It is not possible to provide more than an overview of decision analysis in a discussion such as this. If the concepts presented above interest you, references are provided for further reading. The text by Sox[1] is highly regarded though somewhat technical in content. The brief text by Gross[2] is intended as an introduction for readers new to the topic.

DECISION ANALYSIS IN PERSPECTIVE

"OK," you may be saying, "this is nice, but give me a break! I see value in knowing patient preferences for outcome, but most decisions are simple and straightforward – most don't need formal analysis! And perhaps, if I choose to learn more about this, it may improve my informal everyday practice of patient education and informed consent. And maybe I'd be able to better understand the growing clinical literature that uses formal methods to value outcomes of clinical treatment and testing choices. But if I'm going to take this *really* seriously, in my practice, I need to know when I should I consider

using formal methods of eliciting my patient's expected values."

About 13 years ago, it was estimated "a full decision analysis on a specific patient requires, on average, at least half the time and effort of a trained physician for one to three weeks." (S.G. Pauker, personal communication to F. Davidoff.)[3] Although fast computers and user-friendly software have surely speeded up this process, it will remain uncommon for clinicians to do formal decision analysis with their patients. The best published advice on when to use a formal decision analysis comes from an experienced nephrologist, the editor of the *New England Journal of Medicine*.[4] He suggests formal analysis of the following "utility-sensitive" decisions: 1) when there are major differences in the kinds of possible outcomes (for example, death versus disability); 2) when there are major differences between treatments in the likelihood and impact of complications; 3) when choices involve trade-off between near-term and long-term outcomes; 4) when one of the choices can result in a small chance of a grave outcome; 5) when the apparent difference between options is marginal (a "tossup"); 6) when a patient is particularly averse to taking risks; 7) when a patient attaches unusual importance to certain possible outcomes.

We would add that decision analysis might also be applied proactively to problems which you see frequently. Derive a *general* strategy which is guided by decision analysis in a rigorous manner and file that strategy away for future use. When you see a patient with that problem, individualize it for that patient's personal preferences and values and apply the logic then and there. For example, if you see a patient with a sore throat, you may have derived a strategy in advance for when to do a culture (test and decide) *versus* empiric treatment with penicillin for strep (just treat) *versus* symptomatic treatment alone (essentially just observe). Perhaps you determine that if at least two cardinal findings such as fever, bitonsillar exudate, or tender anterior cervical adenopathy are present you would just treat; if none are present you would just observe, and if 1 or 2 are present you would test and then decide, based on the results. Such a preemptive decision analysis plan would enable you to manage such patients with confidence.

A World Wide Web site to help you with this process has been created at the University of Wisconsin Medical School (http://infocare.medicine.wisc.edu/informatics/home.html). Those with Internet access may wish to utilize the "walk through" chapter of this site as they begin to use decision analysis in their practice.

We hope that you would also use sound decision principles for *every* important "observe, test or treat" decision if only in a rudimentary manner: consider the treatment benefits and risks, the diagnostic likelihoods before and after testing, and only then make your decision. Even without performing the process in a formal way, you may find that this clarifies the issues and leads to more successful decisions.

SUMMARY

Physicians sometimes question whether evidence-based medicine "is worth it." They rightfully feel they have been doing a pretty good job right along. This does indeed seem to be the case. Yet the world of medicine is changing rapidly – perhaps too rapidly for our previous habits to suffice. Resources are increasingly restricted even while technology grows explosively – the time, money, and availability of tests and treatments are no longer infinite. If we are to fight for the best decisions for our patients, we must be prepared to support our decisions with more than just opinions and anecdotes. The importance of medical ethics, common sense, and spirituality will not diminish for all this; indeed it may be enhanced as growing consensus on the evidence allows us to focus on the "non-evidence" aspects of our practices. The authors of this special issue of the *Wisconsin Medical Journal* hope that the concepts we have discussed will convince you to learn more about the important discipline of evidence-based medicine. It is an exciting paradigm for medicine in the coming millennium.

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Evidence-based Medicine on a Page

Evidence-based Questions: In patients like mine ... ...what are the quantitative characteristics of X; is X better than Y?

	Diagnosis	Therapy	Risk	Prognosis
Search	diagnos* OR sens*; sensitivity AND specificity. Differential diagnosis	random* or therap*; randomized controlled trial	(risk OR odds ratio); cohort* OR case control	(incidence OR prognos*); cohort* OR follow-up
Validity Criteria	Was there an independent blinded comparison with a gold standard **AND**, was patient spectrum appropriate? Yes — *No. See note 2.* Was the gold standard test done independent of the result of the index test? Was the test described explicitly enough for you to reproduce it locally?	Were patients assigned to groups randomly, **AND** were all patients accounted for at the end in their originally assigned groups? Yes — *No. See note 2.* Were patients, researchers and clinicians blinded? Were groups similar at the outset? Were the groups treated comparably other than the index treatment?	Were the compared groups similar except for the risk, **AND** were the outcomes measured the same in both groups? Yes — *No. See note 2.* Was follow-up sufficient in duration and completeness? Is the time sequence logical? Was there a dose-response relationship?	Was a well-described cohort assembled at a uniform stage in the disease, **AND** was follow-up long and complete enough? Yes — *No. See note 2.* Were the outcomes objective, unbiased, and assessed comparably? Were other prognostic factors adjusted for?
Applicability Criteria	Yes to all. See note 1. — *No to 1 or more. See note 3* Is the test practical in my locale? Are the patients comparable to mine? Might the results affect management sufficiently to benefit my patient? Yes to all. See note A. — *No to 1 or more. See note B.*	Yes to all. See note 1. — *No to 1 or more. See note 3* Are the patients like mine? Are all outcomes of importance considered? Does my patient consider the benefits to be worth the potential harm? Yes to all. See note A. — *No to 1 or more. See note B.*	Yes to all. See note 1. — *No to 1 or more. See note 3.* Are the patients like mine? Is the risk of important magnitude? Is it worth removing the exposure in real world circumstances? Yes to all. See note A. — *No to 1 or more. See note B.*	Yes to all. See note 1. — *No to 1 or more. See note 3.* Are the patients like mine? Will the results affect therapy decisions or meaningfully enhance counselling? Yes to all. See note A. — *No to 1 or more. See note B.*
Results	Likelihood Ratios from sens., spec.	Absolute/Rel. Risk Reduction, NNT	Absolute/Relative Risk, Odds Ratios, NNH	Likelihoods of All important Outcomes

1. **Validity** of this evidence seems strong. You can assume it is valid unless contradictory evidence of comparable quality exists. RCT > Cohort > Case Control design. If such contradictory evidence exists, compare biological plausibility, or acknowledge the toss-up and use patient preference, local factors, etc.
2. The **validity** of this evidence is sufficiently compromised that you should be reluctant to apply it to a clinical decision. If this is best evidence available, you are obliged to rely on clinical experience, biology, patient preference; acknowledge suboptimal state of the art.
3. The **validity** of this evidence is potentially **compromised**. Use your judgment to determine how important the deficiencies are, in the context of your patient.

A. The **applicability** of this evidence is strong; you may feel confident in applying it your patient.

B. The **applicability** of this evidence is **questionable**; use very careful judgment before applying it your patient.

Applicability and validity criteria based in part on Sackett et al. Evidence-based Medicine, Churchill Livingstone, New York, 1997. Portions Copyright © 1998 Richard Gross, M.D.

Evidence-based Medicine and Cooperative Quality Improvement Projects

Joseph Blustein, MD, MPH, and Jay A. Gold, MD, JD, MPH

As physicians at our best, we incorporate evidence-based medicine (EBM) into our practices by the conscientious, explicit and judicious use of current best evidence in making decisions about our patients.[1] We integrate our internal clinical expertise with the best available external clinical evidence. Our clinical expertise comes through the process of diagnosis and the choice and administration of appropriate treatment. The best external evidence is clinically relevant research. There are several user-friendly databases which quickly assess validity, applicability and implications of the research. The practice of EBM is a life-long, self-directed learning process in which caring for our patients creates the need for current clinical information about diagnosis, prognosis and therapy that is fundamental to the art of medicine.

MetaStar's principal goal in working with physicians is to improve care provided to Medicare beneficiaries and to promote the practice of EBM. Our efforts center on the Health Care Financing Administration's (HCFA's) Health Care Quality Improvement Program (HCQIP), launched in 1992 to promote quality improvement in health care services provided to Medicare beneficiaries. Our cooperative projects are designed to involve physicians, health-care facilities, their staff and others in the community. These projects utilize evidence-based health indicators, continuous quality improvement methods and intervention strategies, and they have a broad impact on improving health care not only for Medicare beneficiaries but also the community in general.

There are eight basic steps in a MetaStar HCQIP cooperative project.

1. Defining a potential opportunity, incorporating an EBM approach to clinical research, to improve patient care.
2. Identifying benchmark performance to illustrate what is possible.
3. Recruitment, finding providers interested in collaborating. It is more than interest. It is the commitment to change.
4. Measuring the baseline quality health indicator(s) rate(s).
5. Determining the opportunity to improve care and developing strategies to do so.
6. Implementing quality improvement interventions that are designed to improve provider performance and/or change patient behavior.
7. Re-measuring the quality health indicator(s) and evaluating the effect at provider and aggregate or state levels.
8. The final step is a dichotomy. If care has been improved, then institutionalizing the process changes that made this happen. If care has not improved, then developing/implementing new strategies.

Steps 6 and 7 can be repeated as needed until the individual provider's goals are met. Throughout the project MetaStar is available as a resource, providing guidance and support for collaborators.

MetaStar has completed over 25 quality improvement projects over the past five years including all of 10 most frequent project topics nation-wide.[10,19-33] As representative of these 10 popular projects acute myocardial infarction (AMI) and management of diabetes mellitus will be outlined to illustrate how EBM and Peer Review Organizations (PROs) are in harmony. The following reports are taken from a recent publication of the American Health Quality Association.[2]

Acute Myocardial Infarction

Selection of the Topic

Cardiovascular disease remains the leading cause of death in the United States. Nearly 1 million Americans died from cardiovascular disease in 1995, and about five-sixths of these deaths were in individuals aged 65 or older.

AMI treatment is an excellent target for quality improvement efforts because AMI is a disorder with major impact upon Medicare morbidity, mortality, and costs. There are evidence-based and consensus-approved guidelines documenting advances in AMI treatment that have not been fully implemented.

The major cause of death was from coronary heart disease or AMI.[3] Specifically for Medicare, there were 388,730 hospitalizations for AMIs in 1995, or about 10 hospitalizations for every 1,000

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enrollees. The mortality rate among Medicare AMI patients is high. Among elderly Medicare patients suffering a heart attack in 1995, about 19% died within 30 days of the attack. Over 30 percent died within one year of the heart attack, and about 40 percent died within two years.[4]

Medicare payments covering hospitalizations for cardiovascular disease totaled about $3.4 billion or about $9,140 per discharge.[5] These numbers grossly underestimate the economic impact of heart attacks and ischemic heart disease. Besides not including physician and other provider payments, the transfer hospitalizations related to an AMI cannot always be identified by claim coding. In 1993, Medicare payment was estimated to be $20,000 for each heart attack patient. If all of these AMI and coronary disease-related problems were to be combined into one diagnosis related group (DRG), it would represent the largest total Medicare reimbursement to providers.

Basic research and clinical trials have advanced the treatment of AMI.[6,7] Often translating innovations into clinical practice is a slow process and the treatment of AMI is no exception. The opportunities to improve AMI care are shown by the baseline results from a HCFA pilot project regarding AMI treatment. Of the ideal candidates for treatment, only 83% received aspirin, 69% received "clot-busting" medications (or thrombolytics), and 45% received betablockers[8] – each important indicators of AMI care.

PRO Interventions to Address the Problem

Because of the topic's importance and potential for improvement, HCFA selected AMI as the focus of the first national HCQIP provider-based project, called the Cooperative Cardiovascular Project (CCP).

In 1993 HCFA convened and the American Medical Association coordinated a national panel of experts to develop quality indicators for AMI care. The panel used guidelines and other evidence from clinical trials as well as professional experience to develop a comprehensive set of measures. CCP emphasized the following quality indicators: aspirin use initially and at discharge; reperfusion (artery opening) including the use of thrombolytics or angioplasty and speed of use; beta-blocker use; use of angiotensin-converting enzyme (ACE) inhibitors in heart failure; avoidance of calcium channel blockers in heart failure; and smoking cessation counseling.

The implementation of CCP began with a pilot project in four states: Alabama, Connecticut, Iowa, and Wisconsin. The PROs in these states examined medical records for all heart attack discharges from the last half of 1992 and early 1993. The quality indicators were calculated and results were reported to the clinicians through mailings and at hospital presentations, regional meetings, and teleconferences. PROs then requested improvement plans. Of 390 hospitals included in the data collection, 379 were contacted, and 73% responded with improvement plans. The baseline results were described in detail in a 1995 article in *JAMA*.[8]

HCFA proceeded with nationwide implementation in 1995. Clinical data abstraction centers abstracted medical records from eight months of AMI discharges (staggered between February 1994 and July 1995) for each hospital in the rest of the nation. PROs used the raw clinical data to calculate the quality indicator rates, reported the results to hospital clinicians, and asked for improvement plans, as was done in the pilot project. The indicators most frequently cited in provider improvement plans included: administration of aspirin, reperfusion, risk factor modification, use of beta blockers, and assessment of left ventricle function. The national CCP project has proceeded to the remeasurement phase, with data from 1997 AMI hospitalizations now being abstracted and analyzed.

Results of Intervention

The results of the pilot effort were published in the May 6, 1998 issue of *JAMA*.[4] The results were positive. Performance on all quality indicators improved significantly from baseline (1992) to follow-up (1995). Aspirin use improved from 84% to 90% and beta-blocker use from 47% to 68%. These process improvements were associated with a 10% relative reduction in deaths. Comparisons to care in the rest of the nation showed that many of the quality indicator rates were better in the pilot states than in the rest of the nation. Three quality measure differences (for aspirin and beta blocker prescriptions and smoking cessation counseling for smokers) were statistically significant.

Death rates were also significantly lower in the pilot states. The reduction in heart attack mortality between 1992 and 1995 was about 50% greater in the pilot states than in the rest of the nation. CCP contributed to saving about 100 lives per year in the pilot states. If the national CCP effort produces comparable results, about 3,000 Medicare lives per year will be saved in this country.

The CCP pilot results are encouraging. However, AMI death rates remain high, and opportunities remain for improvement in the CCP quality indicators (e.g., beta blocker use is only at about 70%). The CCP pilot results strongly suggest that the CCP approach made a difference in the pilot states – patient outcomes were favorably impacted.

Management of Diabetes Mellitus

Selection of the Topic

Approximately 4.8 million

Medicare beneficiaries (almost 13 percent of the total Medicare population) have been diagnosed with diabetes.[9] Diabetes can lead to a variety of disabling and life-threatening complications among Medicare beneficiaries, including blindness, lower extremity amputation, end-stage renal disease, and death.[10,11,12] Tight glycemic control, annual eye examinations with prompt treatment of clinically significant diabetic retinopathy, comprehensive foot care with patient education, use of angiotensin-converting enzyme (ACE) inhibitors upon detection of early kidney dysfunction and aggressive blood pressure control, can prevent or slow the progression of diabetes complications.[13,14] Fewer than 50% of Medicare beneficiaries with diabetes are receiving these recommended services.[16,17,18] Diabetes care for Medicare Beneficiaries is costly; 25% of all Medicare payments are associated with diabetes,[15] resulting in $27.4 billion per year in direct medical expenditures.

PRO Interventions to Address the Problem

PROs are actively involved in projects which address management of diabetes. There are 74 projects in 45 states that target eye exams. In regard to foot exams, there are 58 projects in 35 states and territories, and there are 47 projects in 32 states and territories addressing ACE inhibitor use. MetaStar's diabetes projects have addressed these three indicators and more.[19-21,23,29]

Results of Interventions

To date, seven eye exam projects with re-measurement results report demonstrated improvements in eye exam rates from 0.7% to 35.3%. As a result of these projects, an additional 2,900 patients received eye exams.

Nine foot exam projects with re-measurement results have demonstrated improvements in foot exam rates from 0.5% to 45.3%. An additional 7,600 patients received foot exams.

Fourteen ACE-inhibitor projects with re-measurement results report demonstrated improvements in ACE inhibitor patients received ACE inhibitors.

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Kalisa Barratt, JD

From the Office of General Counsel

The Continued Vitality of a Patient's Informed Consent, or, When the Patient Says 'No'

By Kalisa Barratt, JD, von Briesen, Purtell & Roper, s.c.

The Wisconsin Supreme Court recently decided a case that may have practice implications for Wisconsin physicians. The case, *Schreiber v. Physicians Insurance Company*, raised the issue of a physician's duties when, during the course of treatment, a patient revokes his or her consent and requests instead another viable form of treatment. After deciding a number of informed consent cases in recent years, this is the court's first opinion that addresses an issue other than the sufficiency and content of the informed consent discussion. For this reason, the case warrants discussion.

Informed Consent

The duty of informed consent is based both in common law and in statute. Wis. Stats. §448.30, requires physicians to inform patients of the availability of all alternate, viable modes of medical treatment and about the benefits and risks of those treatments. The competent patient then generally has a right to choose from those viable treatment options or to refuse treatment. Breach of the duty of informed consent has evolved from a contract obligation and battery theory into a theory of negligence.

The Facts

The abbreviated facts of the case are as follows. Prior to labor and after discussions with her physician, the patient, who had undergone two cesarean sections in the past, chose to attempt a vaginal delivery (VBAC). During the course of her labor, the patient experienced significant abdominal pain. On three separate occasions, she told her physician that she had changed her mind and requested that the physician perform a c-section instead. The physician urged the patient to continue with the VBAC as he did not feel a c-section was medically indicated. However, the physician testified that he would have performed the c-section if the patient continued to insist. After several hours of labor, the fetal heart rate dropped. The physician performed an emergency c-section. However, the patient's uterus had ruptured and the baby was born a spastic quadriplegic as a result of oxygen deprivation.

The Case

The patient dropped the medical malpractice claim prior to trial. Instead, the patient sued for breach of the duty of informed consent. The trial court dismissed the case. It reasoned that there had not been a substantial change in medical circumstances, so the risks the patient faced were the same as when she had originally given her consent. Thus, the original consent was valid and there was no need to re-obtain consent. The patient appealed. On appeal, the court of appeals reversed. In a broad sweeping opinion, the court held that where two or more medically viable options for treatment are present, the patient has the "absolute" right to select among those options after being informed of the risks and benefits of each approach. A physician may not proceed with a treatment unless the patient has consented to it -- even if the physician personally believes the recommended approach is in the patient's best interest. The court concluded that the physician violated the patient's informed consent right by refusing to follow her choice of treatment. The physician appealed.

The supreme court affirmed the reversal but on somewhat different grounds. The court held that where there is a substantial change in circumstances, a physician has the duty to re-advise the patient of the available treatment options and their risks. However, unlike the trial court, the supreme court held that change in circumstances can be both medical and legal. In this case, the change in circumstances, i.e., the patient's withdrawal of consent where another viable treatment option existed, was a legal change in circumstances. This triggered the physician's obligation to undertake a new

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informed consent discussion. The court found that because the patient withdrew her consent and other treatment options were available, the physician had no authority to continue with the VBAC.

Finally, the court had to decide what standard to apply to the question of whether the physician's actions caused the patient's harm. In previous informed consent cases, all of which addressed issues relating to the substance or content of the informed consent discussion, the court applied a "reasonable patient" test. In other words, did the physician fail to give information that a reasonable patient would want to know. This case, however, dealt with an entirely different issue: whether the patient was given an opportunity to choose her treatment options. The court held that this analysis must be made on an individual basis, that is, what treatment did this patient want.

The Significance of This Case

Physicians should be aware of a variety of issues this case raises. First, this case does not stand for the proposition that physicians must perform procedures on demand. The supreme court anticipated such a concern and specifically stated that the case did not require such action by physicians. However, if there are a number of treatment options, the patient does have a legal right to choose among those that are medically viable.

Next, the facts of this case are extreme for a variety of reasons. The negative outcome in the case was significant in that the child was born with multiple disabilities. The patient's attorney did not pursue a malpractice claim because expert witnesses could not definitively say that the physician did not meet the standard of care. Thus, the plaintiff changed from a theory of professional negligence (malpractice) to the informed consent theory. Plaintiffs' attorneys have been quite successful using this tactic and no doubt this trend will continue.

Perhaps most importantly, the patient's revocation occurred in the throws of labor, where, according to the physician's testimony women often request c-sections because of the intense labor pain. At trial, the patient testified that she believed she would attempt the VBAC but that she could change her mind during labor and instead have another c-section. She also testified that she felt intimidated by her physician when she requested the c-section. The physician testified that he believed the patient's pre-labor choice of a VBAC was to be pursued unless and until her symptoms medically warranted a c-section. Apparently, the physician and patient had miscommunicated. It is very important that physicians are clear when discussing treatment options with a patient. Also, the need to be open to the patient's input throughout the course of treatment cannot be overly stressed.

Although it may be clear to physicians when a substantial change in medical circumstances occurs, a legal change in circumstances may be less obvious. This case focuses on a legal change in circumstances, a revocation of consent. A number of other changes in legal circumstances may present themselves to physicians in the consent area. For example, a child reaching age of majority, or a patient who becomes incapacitated may trigger a duty to re-obtain consent. When there is a substantial change in medical or legal circumstances, it is prudent to re-obtain informed consent.

Suggestions for informed consent discussions, in light of this case, are as follows:

- Document all informed consent discussions thoroughly in the patient's medical record. Include any risks associated with the alternative methods of treatment, any specific patient questions, and any materials given to the patient.
- If the patient requests treatment that in a physician's medical judgment is not a viable alternative or is outside of the scope of the physician's training, or morally objectionable, explain the problem to the patient and offer the patient the option of obtaining a second opinion. Document objections or concerns in the medical record.
- If, during the course of treatment, the patient requests a different viable medical treatment, ask the patient if the request is a revocation of consent to the current procedure. If the answer is yes, and there are other viable treatment options, the procedure should be terminated. Another informed consent discussion of the risks and benefits should be undertaken before another procedure is commenced.

Conclusion

Consistent with the adage that hard facts make bad law, the *Schreiber* case may be described as unusual facts make peculiar law. The court cautioned that this was an unusual case, and should not be read too broadly to imply conclusions beyond the facts of the case. Even saying that, however, the decision is at least a very strong reminder that patient consent and decision making is paramount in medical treatment decisions.

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May/June 1999

WMJ

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Thomas C. Meyer, MD

Editorial

WMJ Grateful for Financial and Critical Support

by Thomas C. Meyer, MD, WMJ *Medical Editor*

Three items of note have occurred recently which may be of interest.

The first is that the SMS Foundation's J. George Crownhart Memorial Fund, at the request of the Crownhart families, has made a most handsome contribution to the *WMJ*. An equally handsome donation has come to the Journal from the Wisconsin Chapter of the American College of Physicians. Both expressed the hope that these donations would enable the publication of more than six issues of *WMJ*, which is the number currently planned for this year. We indeed hope to do that. Our goal is to publish two additional issues, but there are as yet too many imponderables to assure that objective.

J. George Crownhart was the first non-medical person to be named Secretary of the State Medical Society of Wisconsin when he was appointed in 1923 following an impressive career as a newsman and political activist in Madison. His untimely death at age 44 occurred while he was attending an AMA meeting in Cleveland. He was succeeded by his brother Charles, who, at the time, was the Society's attorney. Charles instituted the memorial fund honoring his brother with the express purpose of ensuring the continuance of George's interest in the "Blue Book" issue of the Journal. The political Blue Book was published annually to provide physicians with up-to-date information about key legal, legislative, and organizational issues affecting the medical profession. That Wisconsin physicians have this reference information was a high priority for both George and Charles Crownhart.

In addition, the surviving Crownhart families have had an abiding interest in asthma. Therefore this issue of *WMJ* explores some of the current thoughts of this malady.

Regrettably no scientific papers dealing with asthma are on hand. However, the Initial Findings on the Asthma Outcome Study in adults provides some insights into the problems attendant the collection of process and outcome measures using practice guidelines and involving both physicians and patients in the study. While the majority of practices sampled in the study were those of physicians on the study committee and therefore well aware of the goals of the enterprise, many problems were encountered which slowed the study's progress. Nevertheless, we salute all involved in this and other studies being conducted by the Henry A. and Irene S. Anderson Center for Medical Practice Research and Education at the State Medical Society.

The second major donation to *WMJ*, with the expressed hope that an increased number of issues may be published came from the Wisconsin Chapter of the American College of Physicians. By happenstance, the moving spirit in the initiation of the grant is a leader in allergy/immunology research. Again, by happenstance the abstracts from the first merged meeting of the Wisconsin Chapter of the American College of Physicians-American Society of Internal Medicine "came up" for publication in this issue. The Journal is pleased to cooperate in the wider distribution of the work of residency programs throughout Wisconsin, in this case residents from five programs in internal medicine.

The other piece of good fortune that the Journal experienced recently was a critique by none other than George Lundberg, MD, one of the "deans" of medical journalism. Doctor Lundberg was in Madison for a few days and was persuaded to review and comment on several recent issues of *WMJ*, which he did in his usual perceptive and critically supportive way. He pointed out that the Journal obviously serves several functions which may complicate the editing and production of each and every issue. His major criticism was that he was unable to find a statement anywhere of what the *WMJ* is trying to accomplish. No one could, therefore, gauge whether those goals are being attained.

You may recall our most recent attempt at obtaining readership views of the *WMJ*. It was sent out last fall with *Medigram*. The response was rather poor so we will try other approaches to obtain your opinions and advice. We would surely be grateful for any input - best done by contacting *WMJ*'s managing editor, Kendi Parvin at SMS 800-362-9080 ext. 221 or by e-mail kendip@smswi.org. We look forward to your input.

WMJ

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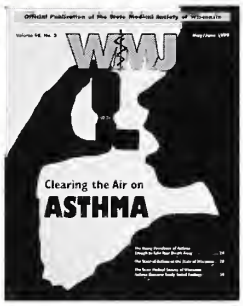

COVER THEME ASTHMA

In the last 10 years, the incidence of asthma has soared 170% — a statistic that literally takes your breath away. This issue of WMJ *examines possible reasons for asthma's increase, its causes, its triggers, and the steps you, as physicians, can take to both treat and educate your patients.*

Cover design by Kendi Parvin, *WMJ* Managing Editor

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'Never On a Saturday' Authors Defend Findings

The January/February 1999 Letters to the Editor contained a submission from Thomas Moyer. Doctor Moyer's letter contained several specific criticisms of the "Never on a Saturday (or a Sunday)" article that was published last October. This letter responds to his comments.

Doctor Moyer's letter read in part, "*The recommendation by Knobeloch, et. al is to follow up positive urine arsenic results by requesting the test subject abstain from seafood, with retest in three days. This approach is inappropriate because many foods contain these nontoxic forms of arsenic...*" His letter also stated that "*the medical community has known for many years that seafoods contain nontoxic forms of arsenic*" and that "*many clinical laboratories [offer] follow-up procedures that discriminate between toxic and non-toxic forms of arsenic.*" According to Moyer, "*the procedure . . . is straightforward and . . . the cost . . . is minimal compared to the increased cost associated with follow up, and the alarm caused by false-positive results based on obsolete technology.*" He concluded by writing, "*Public health officials should take advantage of this local expertise before alarming the public unnecessarily.*"

Unfortunately, Dr. Moyer has misinterpreted our article, which contained the following recommendation:
"*Analytical methods that can differentiate organic and inorganic forms of arsenic are expensive and may not be offered by some laboratories. Until these tests are more widely available, patients should be advised to eliminate fish and seafood from their diets for several days before collecting a urine specimen for analysis. Even when this precaution has been taken, elevated urinary arsenic levels must be interpreted cautiously since dietary supplements ... can also contain significant levels of organic arsenic.*"

We did not discuss procedures for follow-up testing as indicated by Dr. Moyer. Instead, we recommended that seafood and fish be eliminated from the diet prior to collecting the initial urine specimen. This testing regimen is consistent with those of many laboratories and greatly reduces the chance of a false-positive arsenic result.

After reading Dr. Moyer's letter, we contacted three major laboratories that serve Wisconsin's medical community. The Mayo Medical Laboratories, with which Dr. Moyer is affiliated, conducted two of the arsenic analyses discussed in our article. This laboratory currently offers two tests for urinary arsenic. The most common is a urine metals screen that measures total arsenic, as well as lead, cadmium and mercury. This is the analysis that was described in Case II of our article. A follow-up analysis that differentiates inorganic and organic forms of arsenic is conducted only if the physician knows to request it. In the cases we reviewed, the laboratory report did not mention the availability of a follow-up analysis or recommend further testing. The cost of the differential analysis is approximately twice the cost of the metals screen. Neither the Wisconsin State Laboratory of Hygiene nor Aurora Consolidated Laboratories, which is affiliated with the West Allis Hospital, offers an analysis that can distinguish organic and inorganic forms of arsenic. Staff at both facilities advised us that there is not enough demand for arsenic analyses to justify the cost of developing and maintaining such a test.

We realize that many physicians are aware that seafood can be a source of nontoxic forms of arsenic. However, we were surprised — and we suspect that many of your readers were also surprised — to find that a urine arsenic could exceed the "normal range" by as much as 30 fold following a single serving of marine fish or shellfish. The purpose of our article was to share this information with medical providers throughout Wisconsin. Physicians who instruct their patients to eliminate fish and seafood from their diets for a few days before collecting urine for arsenic analysis or a metals screen will reduce the incidence of expensive follow-up visits and tests. This strategy will also protect patients, as well as their families and employers, from the unnecessary alarm that can be caused by a "false-positive" arsenic result.

Lynda M. Knobeloch, PhD, Chief Toxicologist, and Henry A. Anderson, MD, Chief Medical Officer, Wisconsin Division of Public Health

Recognizing the Bottom Line

In a recent conversation with a colleague, he told me of the business education he had acquired and how he was trying to decide how to put it to use. It seems the MBAs of the world have developed the Principal of the Bottom Line which, in summary, is that (with the exception of church giving) bigger is better. The

Bottom Line (BL) is seen to be affected by many sub bottom lines (SBL), and occasionally by sub sub bottom lines (S-SBL). From this he learned that it behooves the prudent business person to bolster and support (BS) the sub-bottoms that have potential to significantly affect the bottom.

Shortly after grasping this complex business theory my colleague received two boxes in the mail as a gift for Doctor's Day. The first box measured 10.25" x 5.75" x 1.75". The second measured 7.75" x 4.25" x 1.25". Thus the volumes were 103.14 and 41.17 cubic inches respectively. It was not difficult to see the BS on his desk directed at him, an SBL. With his new-found business acumen he sharpened his decision-making process using the comparative data therein. The larger box contained candy and nuts from Godiva's Gifts, a gift from Big Town Memorial Hospital. The smaller box contained nuts from Godiva's Gifts, a gift from St. Other Side of Town Hospital. Quantitating the BS contained in the boxes was complicated, however, as a sub-sub-bottom line [S-SBL] was present in this equation also. Though one box was smaller, it contained all cashews whereas the larger contained a mixture of candies, cashews and less valuable nuts. (The quality of nuts in the organization is obviously significant, but that's a topic for advanced business education.)

Combining his new-found cache of business knowledge with the measurable facts, it appeared that Big Town Memorial granted my friend a larger SBL status with stronger BS than St. Other Side of Town. (Or perhaps they see him, a rural outlier, as of greater future importance?) This knowledge of the SBLs and their relationship to the final BL must, according to the Principle of the Bottom Line, be registered in the data bank of decision-making resources, undoubtedly affecting his future referral patterns.

In summary, to be successful, one must recognize the many BLs, SBLs, and S-SBLs (collectively know as "the bottoms") of the world and culture them with more than adequate BS.

My friend remains anonymous in hopes that he will remain on the nut list of both institutions.

Geoffrey Kloster, MD
Galesville, WI

Students Express Gratitude for 'Precious Gift'

This letter was written by students who recently completed gross anatomy class during first semester at the University of Wisconsin Medical School. For many of them, the first experience dissecting a human body was as intense emotionally as it was intellectually. The doctors-to-be paid their respects in a special memorial service to those whose bodies made their education possible. In this letter, they expressed some of their feelings to the cadaver from whom they learned so much.

On behalf of myself and my fellow students, I am writing to thank you for all you have taught us during this first semester of medical school. Even though you are not a member of the faculty, nor a fellow medical student, you have taught me more than anyone else. Yet I don't even know your name.

But I do know you must have been exceptionally kind and generous, because you donated your body to help educate a new generation of doctors: doctors who may someday use their skills to help treat your grandchildren or great-grandchildren.

You have taught me something more valuable than anything I could have learned in a textbook – the beauty and wonder of the human body. I have marveled at a human heart, which sustains life and yet is small enough to fit easily into my cupped hands. I have traced the path of nerves, which allow us to interact with the outside world, but may be no larger than a strand of hair. But the true miracle is how this complex and beautiful framework can somehow be imbued with life. I know there was much more to your life than this body you left behind. I hope to keep this in mind for my patients as well – that there will be much more to their lives than their ailments.

It cannot have been an easy decision to donate your body instead of leaving it to your family for a proper burial. I hope your loved ones understand your gift has not been taken lightly. We have commemorated you at a special ceremony.

And so I want to thank you for giving me this most precious gift of knowledge and insight. You have truly created an amazing legacy. You and 33 others taught our class of 143 future doctors. We will go on to treat tens of thousands of patients over our careers, all of whom will have reason to thank you for what you have given us.

Amy Sobota
University of Wisconsin Medical School, Class of 2002

Editor's Note: *The letter speaks for more than the class of 2002. Inquiries concerning donation of bodies should be made to University of Wisconsin Medical School, Department of Anatomy, 608-262-2800 or Medical College of Wisconsin, Department of Cell Biology, 414-456-8261.*

Susan K. Rowe, MD

Physician Citizen of the Year

First-Time Parents Get Monthly Primer; Eau Claire Physician Gets Award

by Steve Busalacchi, Director, News & Information

New parents in the Eau Claire area aren't quite so frazzled, thanks to the efforts of **Susan K. Rowe, MD.**

Doctor Rowe, a family practice specialist, helped establish a program which delivers a monthly newsletter to parents that informs them of developmental changes and parenting advice as their child grows. This project is just one of Dr. Rowe's many volunteer efforts, for which she was recognized with the 1998 Physician Citizen of the Year Award.

The SMS chooses up to eight Physician Citizens of the Year from various medical society districts in the state. The award honors physicians for their uncompensated civic, cultural, economic and charitable services they have provided to local or state communities. It recognizes physicians like Dr. Rowe, who give their time and energy to improving their community and state.

"Susan (Rowe) and her husband, David, have donated not only their time, but also have been willing to donate financially to support young children and adults in need," wrote Judy Lien, of Eau Claire, in her nomination letter.

Parenting Program Is Favorite

An active member of the Kiwanis International, Dr. Rowe was drawn to an informational program developed at the University of Wisconsin-Madison. When the Kiwanis discovered it, the group wanted to bring the information to new parents.

"I was really intrigued, and became very active over a period of time," Dr. Rowe recalls. What sold her on the program's value was the need for such information, especially for today's parents.

> *"I just feel that I have gotten so much more back. I've met some incredibly wonderful people because of my involvement in the various volunteer organizations in the community."*
>
> *Susan Rowe, MD*

"In the past, people were able to go to mom and dad, aunts and uncles. There were a lot of readily available people to ask about problems. It's just harder to get that kind of parenting advice," Dr. Rowe said.

She adds that it's wonderful "to find something that shows up on your doorstep once a month that hits you just where your child is at, as far as age group. I really liked the way it all went together to provide the maximum impact."

Doctor Rowe became the point person for working with local and state extension agencies and the Kiwanis clubs throughout Wisconsin and in Upper Michigan on how to distribute and finance the newsletter.

The response from parents has been so overwhelmingly positive that they ranked the newsletter on par with their clinic, hospital or physician for the quality of information provided. And some even sent contributions so other parents would be assured of benefiting as they had.

"Obviously, when people send me money out of their own pocket, they really do think it was valuable," added a gratified Dr. Rowe. The program was initially slated to provide newsletters only for the first year of parenting, but Dr. Rowe helped to expand it so the same families receive monthly newsletters for three years.

Finding the Time

In addition to her work with the Kiwanis, Dr. Rowe volunteers for Special Olympics, the Salvation Army and food pantries. And with two children, 1-year-old A.J. and 2-year-old Martina, Dr. Rowe and her husband are busier than ever. But she still manages to pursue the athletic activities she enjoys, which include racquetball, biking and hiking.

"Your priorities change when you make time for those things that seem worthwhile," Dr. Rowe said. "I just feel that I have gotten so much more back. I've met some incredibly wonderful people because of my involvement in the various volunteer organizations in the community."

Who's in the News

Ihor Galarnyk, MD, was presented a "memory album" from the Plain Ambulance Service for 22 years of service as the organization's medical director.

Bradley Garber, MD, a family physician from Fairchild, was honored for 25 years of membership in the American Academy of Family Physicians during their 49th Annual Scientific Assembly in Chicago.

Perry Henderson, MD, a retired obstetrician and gynecologist, was elected president of 100 Black Men of Madison. The group mentors and tutors young people in the Madison area.

Glenn Hillery, MD, of Lancaster, was one of nine volunteers with the Blackhawk Area Council, Boy Scouts of America, recognized with the Silver Beaver Award. Doctor Hillery has been a pack and troop committee member for the past 38 years.

Robert Jaeger, MD, of Rice Medical Center's obstetrics/gynecology department has been elected treasurer for District 6 of the American College of Obstetricians and Gynecologists at its annual meeting in Chicago.

James McGovern, MD, an oncologist at Green Bay Oncology, Ltd., received the 1998 Guardian Angel Award from Unity Hospice. He was cited for his 16 years working with Unity Hospice and Bellin Hospital's hospice.

Dr. John and **Sally Mielke**, of Appleton, received the 1999 Walter J. Rugland Community Service Award during the Aid Association for Lutherans 19th annual report to the community. Their efforts involved creating opportunities for more people to volunteer and recruiting others to take ownership of programs after the groundwork and funding was in place.

Ifueko Okundaye, MD, and her husband, Bennett, traveled to Jesse Town, Nigeria, to deliver medical supplies to the village after a pipeline explosion occurred. The mission was sponsored by African Heritage, Inc. Doctor Okundaye specializes in the treatment of kidney disease at Fox Valley Nephrology Partners, Inc.

Carl E. Olson, MD, a radiation oncologist with Sheboygan Regional Oncology Center, is the new president of the statewide American Cancer Society Wisconsin Council.

Dhimant Patel, MD, an oncologist at Rhinelander Regional Medical Group, was among the health care professionals featured in Ministry Health Care's "Demystifying Cancer" TV special on WAOW-TV 9.

Welcome New Members
continued from page 8

Vernon
Francis Ferroli Joseph, MD

Washington
Roxanna Lynn Aldstadt, DO
Mary Rose Tiller, MD

Waukesha
Lynn Margaret Bartl, MD
Stephanie Carroll (S)
Kurt Pfeifer (S)
Chad G. Van Den Heuvel, MD
Jeffrey Duane Winkoski, MD

Winnebago
Christopher Shawn Westra, MD

Wood
Joel Martin Carlson, MD
Randall N. Ceaglske, MD
Regis Richard Chamberlin, MD
Robert L. VanDyken, MD

(S) designates medical student membership

AMA Awards

The SMS member physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations.

A. Charles Alexander, MD
David H. Bartlett, MD
Efstathios Beltaos, MD
Curtis W. Bush, MD
Donald J. Cohen, MD
Erick Gonzalez-Rodriguez, MD
John T. Grandone, MD
James P. Hollowell, MD
Robert J. Jaeger, MD
Sujatha Kailas, MD
Maureen M. Martin, MD
Patrick J. McWey, MD
Earl W. Nepple, MD
David C. Olson, MD
James T. Paloucek, MD
Priti Dilip Patel, MD
Frederick D. Rochman, MD
Loren A. Rolak, MD
Walter R. Schwartz, MD
Richard M. Searl, MD
Richard L. Shaffer, MD
Mark W. Sharon, MD
Jill M. Stebbins, MD
John C. Strickler, MD
Mahmoud S. Taman, MD
Edward M. Vernier, MD
Fred H. Walbrun, MD
William A. Wood, MD

Welcome New Members

The individuals listed below were recently elected to SMS membership by their County Medical Societies. We are pleased to welcome them to the SMS.

Barron-Washburn-Burnett
Stephen Eric Pohl, MD

Brown
Peter Wm. Davis, MD
Steven J. Novotny, MD
Sabina Singh, MD

Clark
Isaias Ranullo Cupino, Jr., MD

Columbia-Marquette-Adams
David M. Terry, MD

Dane
Abdelwahaab Saad Akef, MD
Kristin A. Bradley (S)
Matthew George Erickson, MD
Mary Alice Forester, DO
Aaron Louis Friedman, MD
Yonas Getachew (S)
Lucy Guerra, MD
Michael Noel Hart, MD
J. Louis Hinshaw, MD
Everett Michael Hughes, MD
Lisa Marlene Hunter, MD
Tammy Ann Johnson, MD
Michael James Jugo (S)
Ned Henry Kalin, MD
Muhammed A. Khasru, MD
Daniel Martin Kluger, MD
Peter Matthew Lake, MD
Julie H. Martin (S)
Minesh P. Mehta, MD
Kristin Marie Millin, MD
Kurt Robert Oettel, MD
Shiloh J. Ramos (S)
Mark Reichelderfer, MD
Venkatesh Babu Gokulan Segu, MD
Rebecca Lee Sentman, MD
Heather A. Stanko, MD
Thomas Peter Sutula, MD, PhD
Xuan Thy Thi Thi Tran, MD
Brynjar Vidarsson, MD
Michael B. Walsh, DO
Timothy J. Wiegand (S)
Thomas Arthur Zdeblick, MD

Douglas
Gary W. Jones, MD
Patrick Gerald Schoenfelder, MD

Eau Claire-Dunn-Pepin
Derek Ralph Hubbard, MD
Lawrence Clark Scherrer, MD
Eric Wayne Sorenson, MD
Amy Lynne Wagoner, MD

Fond du Lac
Robert Dallas Newton, DO

Jefferson
Elizabeth Siitari, MD

Kenosha
Gedas Marius Grinis, MD
David J. Shinkunas, DO
Suzanne Donick Siegel, MD

La Crosse
Gregory Louis Young, MD

Marathon
Robert Arthur Jensen, MD
Kristi Lynn Klett, MD
Sarah T.B. Seidelmann, MD
David D. Springer, MD
Kenneth Michael Wolnak, DO

Milwaukee
Hussamaddin Al-Khandour, MD
Andy A. Aziz, MD
Leslie Janes Mudd Beaird, MD
Scott J. Brantmeier, DO
Jill M. Bresnahan, MD
Gina Marie Buono, MD
Teresita T. Bustos, MD
Scott David Caldwell, MD
Mary C. Cameron, MD
Paul Carter (S)
Brian Chavez (S)
Kenneth Y. Chiou, MD
Ui I. Chung, MD
Amy E. Dressel, MD
Reena Annie George, MD
George E. Gilmore, IV, MD
Aaron Holtebeck (S)
Pauline H. Hong, MD
Jeffrey Huebner (S)
Zelijko M. Ivanovic, MD
Michael Joseph Jaeger, MD
Juhi A. Jagiasi, MD
Sean A. Jochims, MD
Mark Andrew Johnson (S)
Shanthi Antonette Joseph, MD
Kristine G. Juntunen, MD
Ambreen Khurshid, MD
Darrin Scott Levin, MD
Amy Marie Lukes (S)
John Rhode McGuire, MD
Mark W. Mewissen, MD
Kasra Allen Milani, MD
William C. O'Meally, MD
Karl Orth (S)
Kenneth J. Phillips, Jr., MD
Elizabeth Anne Polacheck, MD
Ganapathy A. Prasad, MD
Rene Recinos, MD
James Lawrence Rossiter, MD
David Daniel Rotenberg, MD
Keith Ryan (S)
Smita S. Sane, MD
Aysha Lee Schaper, MD
Kim M. Schaus, MD
Gregory H. Schuchard, MD
Keith Seto (S)
Chinmaya Shelgikar (S)
Sanjay Shrivastava, MD
Gregorio A. Sicard, Jr., MD
John R. Sty, MD
Daniel Mark Talley, MD
Lana L. Tomes (S)
Paul Thomas Wadina, MD
Christine Mary Walsh-Kelly, MD

Oneida-Vilas
Kevin Alden Kummerow, MD
Mary Nelson-Himmler, MD
Mark Richards, MD
Harry William Skye, MD

Outagamie
Ralph David Skowron, MD

Portage
Lisa A. Reineke, DO
Todd Martin Williams, MD

Price
Arun Jain, MD

Racine
Arthur Sebastian Pettigrew, MD
Bharathi Pulla, MD

Richland
Darren John Pipp, MD
Narendra Siddaiah, MD

Rock
Kenneth Roger Betts, MD
Deanne Kay Eccles, MD
Christopher Conrad Gianvecchio, MD
James Michael Giovino, MD
Gayle Marcia Glowacki, MD
Laurel A. Wippermann, MD

Sauk
Joanna Lara Laukant, MD
Catherine Christine Soderquist, MD

Sheboygan
Suzanne Schmidt Herold, MD
Martha Taran, MD

Trempealeau-Jackson-Buffalo
Catharine C. Decker, MD

continued on page 7

In Remembrance

Armah, Joseph A., DO, 53, of Brookfield, passed away March 11, 1999. He earned his medical degree from Kirksville College of Osteopathic Medicine, Kirksville, MO, and completed his family practice residency at Northwest General Hospital, Milwaukee. His primary hospital was Northwest General Hospital where he served in various roles as a member of the Board of Directors and Chief of Staff.

Doctor Armah is survived by his wife, Alice; and his children, Audrey, Jonathan, Shormey and Kenyata.

Dahl, Vincent H., MD, 59, of Oshkosh, passed away March 19, 1999. He earned his medical degree from the UW-Madison, and took his pathology training at St. Mary's Hospital in Duluth, MN. He served the Oshkosh community from 1973 to 1995 as a pathologist at Mercy Medical Center. Upon retirement, he was involved in Prison Fellowship Ministries at Oshkosh Correctional Institution.

Doctor Dahl is survived by his wife, Marilyn; four children, Matthew (Sarah), of Seattle, WA; Bartholomew (fiancee, Jenny Monroe), of Oshkosh; Leah (Stephen) Brooks, of Orlando, FL; Linnea (Robert) Baudhuin, of Cleveland, OH; and one granddaughter, Linnea Brooks.

Elconin, Arnold N., MD, 77, of River Hills, passed away on February 22, 1999. He earned his medical degree from Western Reserve University, Cleveland, OH and completed his internship at Cleveland City Hospital. He served in the US Air Force from 1943 to 1946. He practiced family medicine and general surgery in the Milwaukee area for more than 40 years and was affiliated with Mount Sinai Hospital, Milwaukee.

Doctor Elconin is survived by his wife, Jane; his children, Michael (Jolene), of San Diego, CA, Howard (Theresa), of Glendale, Robert (Pamela), of Minnetonka, MN; and five grandchildren.

Florell, Randy C., MD, 36, of Madison, passed away March 18, 1999. He earned his medical degree from the University of Manitoba, Winnipeg, Manitoba, Canada and completed his residency at the University of Toronto and University of Western Ontario, Canada, studying under the world renowned neurosurgeon, the late Dr. Charles Drake. In 1992 he joined the Dean Medical Center, specializing in aneurysm and brain surgery.

During his years of practice, Dr. Florell served as Clinical Assistant Professor of Family Medicine and Practice at the UW Madison Medical School; member of Anesthesiology Patient Review Committee, Medical Executive Committee, and Surgery Patient Review Committee; Consultant to the Pathology Review Committee, Internal Medicine Review Committee, New Procedures Committee, and Radiology Patient Review Committee all at St. Mary's Hospital. He was a member of Dean Medical Center's Coding and Reimbursement Fee Committee.

Doctor Florell is survived by his children, Erin, Nicholas, Amanda and their mother, Kim (Wallace) Florell, of Middleton; parents, Ole and Leoan Florell of Bienfait, SK; brothers and sisters, Lovannda (Don) Hargest, of Prince Albert, SK, Amber (Walter) Driedger, of Oakville, MB, Greg (Pam) Florell, of Bienfait, SK, and eight nieces and nephews.

Latorraca, Rocco, MD, 78, of Milwaukee, passed away on March 24, 1999. He earned his medical degree from State University of New York Downstate College of Medicine, Brooklyn, NY and completed his internship at SUNY Upstate Medical Center, Syracuse, NY. His residency was completed at Suny Upstate Medical Center, Syracuse, and New England Medical Center Hospital, Inc., Boston, MA.

Doctor Latorraca was a veteran of World War II, a pathologist at Trinity Memorial Hospital for over 30 years and a Clinical Professor of Pathology at the Medical College of Wisconsin the University of Wisconsin-Madison Medical School. He served on the SMS Commission on Peer Review and served as vice chair and chair.

Doctor Latorraca is survived by his wife, Carol; his children, Mary (Luis) Machare, Carol (David) Cunningham, James (Beverly), Donald (Katherine), Rebecca (JeanPiero) and Ellen (Maurizio); and grandchildren, Emily, Naomi, Philippe, Whitney, Ian, Leah and Duncan.

Mabini, Jr., Francisco M., MD, 57, of Hales Corners, passed away on April 12, 1999. He earned his medical degree from the University of Santo Tomas, Philippines. He completed his residencies at Mount Sinai Hospital, Milwaukee and Children's Hospital of Wisconsin, Wauwatosa. Doctor Mabini was a neonatologist-pediatrician and practiced at Mabini Child & Teenage Medical Clinic in Hales Corners.

Doctor Mabini is survived by his wife, Dr. Evelina Mendoza-Mabini; his children, Rebby, Jenny, Francisco III (Kim), Dan and Aileen.

Markson, Leonard S., MD, 89, of Tucson, AZ, passed away April 3, 1999. He earned his medical

degree from UW Medical School and completed his residency at the University of Cincinnati and studied dermatology in New York City. Doctor Markson, a former clinical professor at the Medical College of Wisconsin, was a lieutenant commander in the U.S. Navy during World War II and served as a dermatologist aboard the USS Rixey in the Pacific. After the war, he went into practice with his father in Milwaukee. He served as president of the Noah Worcester Dermatological Society and was a member of the 1986 SMS 50 Year Club.

Doctor Markson is survived by his children, Mary Dawe and Simpson Markson, both of Tucson.

Martinetti, Dominic J., MD, 84, of Hurley, passed away March 17, 1999. He earned his medical degree from the University of St. Louis, completed his internship at St. Mary Group Hospitals in St. Louis, and a residency at St. Joseph's Hospital, St. Charles, MO.

Doctor Martinetti started a family practice in Hurley in 1940. He served in Vietnam as a volunteer physician and surgeon in the 1960s, and was a life member of the Vietnam Veterans of America, Gogebic-Iron Range Chapter No. 529, Hurley.

Doctor Martinetti was active in health and safety programs in the Iron County community for many years, and volunteered at many of the Hurley High School football games, and at the Paavo Nurmi Marathon finish line. He was a Life Member of the SMS and a member of the 1988 SMS Fifty Year Club.

Doctor Martinetti is survived by his daughter, Jeanne (Eino) Maki, Menomonie and six grandchildren, John Maik, of Hustisford; Paul (Renee) Maki, of Buckeye, AZ; Marja (Bob) Philipps, of Victoria, MN; Jim (Paula) Maki, of Goshen, IN; Erik (Leslie) Maki, of Tucson, AZ and Lisa (Andrew) Gilbert, of Hopkins, MN; and seven great-grandchildren.

Mings, Dwain E., MD, 84, of Monroe, passed away on March 8, 1999. He earned his medical degree from the Indiana School of Medicine, Indianapolis, and served his internship and residency at the University of Wisconsin in Madison. In 1947, he joined the Monroe Clinic and practiced there until his retirement in 1982.

Doctor Mings was a past president of the Wisconsin and Upper Michigan Society of Ophthalmology, assistant clinical professor at the University of Wisconsin Medical School, secretary and treasurer of the Green County Medical Society, SMS Life Member, and a member of the 1990 SMS Fifty Year Club.

Doctor Mings is survived by his wife, M. Jane Mings.

Suits, John J., MD, 79, of Marshfield, passed away on February 28, 1999. He graduated from the University of Wisconsin School of Pharmacy in 1943 and went on to earn his medical degree in 1946. Doctor Suits served his internship at the Marine Hospital in Seattle, WA and then joined the US Air Force as a Flight Surgeon, attaining the rank of Captain. He finished his tour of duty in 1950 and returned to the University of Wisconsin Medical School where he completed a residency in pediatrics. In 1952, Dr. Suits joined the Marshfield Clinic, where he practiced general pediatrics and also developed a special section of adolescent medicine at the Marshfield Clinic and was the director until his retirement.

Following retirement, Dr. Suits became involved in several charitable medical activities. He was an honorary member of the University of Arizona medical faculty where he worked in the student health infirmary. He also joined the Flying Samaritans, a group of volunteers who flew to Mexico every other weekend to treat hundreds of destitute, needy Mexicans, and recently went with a Methodist Mission to supply medical aid to people in Mozambique, Africa.

Doctor Suits was a member of the American Academy of Pediatrics, past president of the Wood County Medical Society, State Chairman of the Bureau for Handicapped Children of the State Medical Society, and a member of the 1996 SMS 50 Year Club.

Doctor Suits is survived by his wife, Edna; his children, Jack (Mary Seebandt), of Marshfield; Stephen, of Brookfield; Martha Suits-Groh, of Adrian, MI and Lucy Mae Suits of Minneapolis; and his granddaughter, Jessica Groh.

Vicente, Nina B., MD, 55, of Brookfield, passed away on February 5, 1999. She received her medical degree from the University of Santo Tomas in Manila. Doctor Vicente completed her internship at the University of Santo Tomas Hospital, residency in pediatrics at the University of Chicago Hospital and a fellowship in nephrology at the UW-Madison. She was a pediatrician in the Milwaukee area for 15 years.

Doctor Vicente was past president of the Milwaukee chapter of the Filipino-American Medical Association and a trustee of the Rizal-MacArthur Memorial Association, a charitable foundation that provides medical equipment and supplies for the Philippines. She sang with a Filipino choral group, Tinig Bayan, which means "Sounds of the Nation."

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Donald R. Gore, MD

Council Report

Mediation and Peer Review

by Donald R. Gore, MD

Introduction

I was chairman of the SMS Commission on Mediation and Peer Review April 1996 to April 1998. This paper explains the functions of the commission and describes the activities during that time period.

Purpose of this Commission

The Commission on Mediation and Peer Review reviews complaints against physicians, provides recommendations for resolution, and provides peer review services. The commission's mission statement is provided in Figure 1.

The Board of Directors makes an effort to appoint a diverse group of physicians to the commission so that as many specialties and geographic areas as possible are represented. The commission holds two meetings a year at SMS headquarters to coordinate its activities and discuss solutions for the more complex problems that have been presented. Commission activities extend throughout the year, and are directed by the chairman with the assistance of the SMS support staff.

Mediation

The SMS frequently receives complaints against physicians by phone. The calls are answered by the SMS staff members, and callers are encouraged to send letters of complaint since no action can be taken until a written complaint is received. Once a complaint is received, a copy is sent to the physician involved and a response is requested. When the physician responds, the chairman reviews the information. If the complaint is simply a misunderstanding, the chairman sends a letter of explanation to the patient and a copy to the physician. If medical issues are involved that may have serious implications, the chairman conceals the implicated physician's identity and refers the case to physicians with expertise in the area in question. If the reviewers agree, and the chairman is convinced that the problems have been identified and resolved, a letter is sent to the patient and a copy to the physician. If it is believed that the physician has acted in an inappropriate manner or provided substandard care, this information is relayed to the physician. A separate letter is sent to the patient explaining the findings, and it usually includes suggestions as to how the issues can be resolved.

If complaints are such that they may place the physician's license in jeopardy, the commission suggests the complainant contact the Medical Examining Board. It must be emphasized that the commission does not have the authority to initiate a disciplinary action against a physician but can make those recommendations to the SMS Board for its official action. The commission's primary purpose is to render opinions and assist in resolution of disputes. Legal matters are not the province of the commission. Occasionally complaints are between physicians, between physicians and hospitals, with insurance companies or other entities; but the review process is the same.

Peer Review

Usually, peer reviews are at the request of a hospital that, because of size or conflicts of interest, is not able to perform its own peer review. These requests may be about physician performance in a specific case or a series of cases over a period of time. The commission and the hospital agree on the extent of the review and the specific problems to be addressed. Then, a mutually agreeable contract that includes the cost of the review and a completion date is signed. The cost is solely related to the number of reviewers and their time. Reviewers are paid $80/hour. When the review is complete, it is compiled and the results sent to the requesting entity. Every effort is made by the commission to address all the issues and answer as specifically as possible the questions of those who requested the review.

Other entities that have requested peer review are medical groups, and physicians have asked that their own cases be reviewed if they have been subject to criticism by a hospital or colleague. As with mediation, the commission's only

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As a result of action taken by the SMS Board of Directors at the 1999 Annual Meeting, the Commission on Mediation and Peer Review is now the Council on Mediation and Peer Review. For reprints of this article, contact Donald R. Gore, MD, 2920 Superior Ave., Sheboygan, WI 53081, 920-458-3791, FAX 920-458-3783.

authority is to provide recommended actions to the SMS Board of Directors; its primary function is to provide opinions only.

Figure 1 — Commission on Mediation and Peer Review
This commission shall receive, investigate and seek to resolve differences between physicians and patients or other complainants, or between physicians, on matters relating to quality of care, and professional ethics. When necessary, it shall initiate disciplinary or other action as appropriate. It shall serve as the Society's advisory body to private or governmental organizations on matters affecting medical peer review including utilization review, appropriateness of care and quality assurance. It shall advise and consult with component societies on issues of peer review, mediation, ethics and discipline in concert with members of the Board of Directors. It shall serve as the initial appellate body for peer review and mediation issues that are appealed from local committees of component societies. It shall coordinate the Statewide Physician Health Program.

Activities of the Commission April 1996 – April 1998

During my term as chairman, the commission reviewed 23 complaints—all were patient complaints against a physician. In one instance a physician filed a complaint against another physician concerning emergency care of his child. The medical specialties involved and the number of complaints against each are listed in Table 1. In all 23 situations, the patients were dissatisfied with their medical care because they believed the physician did not handle their problem appropriately.

The complaints can be divided, although somewhat arbitrarily, into the following categories:

a) Six patients believed that their physician had either misdiagnosed or failed to diagnose their problem. In one instance, the commission agreed that a diagnosis had been missed.
b) In six cases the patients alleged that they had had inappropriate tests or treatment. In one instance, the commission and the treating physician agreed that an error in treatment had been made.
c) There were eight instances in which no significant medical issues were present, but the patients were unhappy either with the physician's behavior or his office setting.
d) There were three complaints from independent medical evaluations. In one instance, the patient stated that the physician was abrupt and used profanity. In another, the patient was concerned about the release of medical information of a personally sensitive nature. The commission believed that inappropriate information had been released. This was not a workman's compensation case, so information should not have been released without specific patient approval. In one instance the patient alleged serious misconduct on the part of the examining physician. The physician's response was limited, and so, because of the seriousness of the complaints, the commission suggested the patient contact the Medical Examining Board.

Table 1

Medical Specialty	Number of Complaints
Emergency Physicians	1
Family Practice	5
General Surgery	2
Internal Medicine	1
Neurology	2
Obstetrics/Gynecology	2
Ophthalmology	1
Orthopaedic Surgery	4
Psychiatry	3
Physiatry	1
Urology	2
Total	23

Peer Reviews

Between April 1996 and April 1998 five peer reviews were performed to evaluate the medical performance of an obstetrician and gynecologist, a radiologist, a general surgeon, an orthopaedic surgeon and a gastroenterologist. Each review was limited. Three reviews consisted of one case review, one review consisted of three cases and another consisted of five. In all of the reviews, minor deviances from "ideal care" were identified and recommendations were made. No serious breeches of acceptable care were identified.

Comments

The resolution process developed and followed by the commission when a complaint has been received, we hope, has been effective in providing fairness and satisfaction to both the patient and the physician. Each complaint means that the patient was dissatisfied in their encounter with a physician. Those of us who treat patients realize that patients' expectations can be unrealistic, and there will be some patients who won't be satisfied no matter what we do. Dealing with patients under these circumstances taxes even the most experienced, skilled and compassionate physician. However, no matter how challenging some of these patients can be, we still have to deal with them; and impatience, lack of concern, and even hostility on our part just makes things worse. The common theme in all of the patients' complaints was anger at the physician. The physician's response to the patient's criticism varied from conciliatory to disinterest to defiance. So, some physicians likely benefited from the process, whereas to others it

was an unwelcome intrusion. Thus, if a similar occasion arises, it may not be handled any better.

The peer review process usually has more serious implications because it originates from institutional concerns that a physician is providing substandard care. The commission makes every effort to provide a review that is fair to all involved. Under the best circumstances, this can be an educational experience for the physician being reviewed, ultimately resulting in better patient care. If the physician chooses to ignore or resist the suggestions from the review, his or her difficulties with the requesting organization will likely be intensified.

There has been little change in the number of mediation or peer reviews over the last 10 years. However, that may change thanks to the increase in HMOs, the advent of managed care and large physician groups—many of which have developed protocols for handling complaints internally and also are large enough to do their own peer review. In the past when patients were unhappy with their medical care, they could change physicians, hospitals, or even go to another community. As these options become less available, patient dissatisfaction will likely increase. Whether these conflicts will be handled internally or brought to the commission remains to be seen.

Acknowledgement

The author would like to thank Sonia Porter of the SMS for her invaluable assistance and support of the Commission's activities.

We've Come A Long Way continued from page 23

generosity permitted the formation of the disease-specific task forces and the pilot study growth. Thanks is due to the Fund Raising Work Group co-chaired by Sandra Osborn, MD and John Petersen, MD. The SMS Foundation and its staff have also been essential in securing funding for the pilot studies during their formative years.

Today, MORP is at an exciting crossroads. Thanks to the magnificent endowment gift of Henry A. and Irene S. Anderson in 1998, MORP moved into the Center for Medical Practice Research and Education at SMS headquarters. This move affords a new level of growth and visibility for the project—and we look forward to the subsequent challenges. It is clear that when we work together, we truly can advance the health of the people of Wisconsin.

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Carl Bell, MD: *Assessment and Management of the Violent Individual*
Henry Nasrallah, MD: *Imaging and Treating Psychotic Disorders*
Mervin Smucker, PhD: *Cognitive Behavioral Therapy*
Frederick Heide, PhD: *Psychology and the Creation of Theatre*

August 2-6, 1999
Judith Jordan, PhD: *A Relational Model of Women's Development: Theory and Clinical Applications*
Monica McGoldrick, ACSW, PhD: *Cultural Determinants of Family Therapy*
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For more information, contact Carlyle Chan, MD, Door County Summer Institute Director, Psychiatry Department, Medical College of Wisconsin, 9455 Watertown Plank Rd., Milwaukee, WI 53226, Phone (414) 257-5995; FAX (414) 257-7228; e-mail: cchan@post.its.mcw.edu, home page http://www.mcw.edu/psych/dcsi.html.

Overview

Air Bag Safety: What Physicians Should Know

Murray L. Katcher, MD, PhD, Martha E. Florey, MS, JD, and Donald B. Hagen

Abstract

The presence of air bags in motor vehicles has been credited with saving thousands of lives in frontal, high-speed collisions. However, air bags have also contributed to the deaths of some children and adults in the driver and front-passenger positions in low-speed crashes. It is important for physicians to understand the relative benefits and risks of air bags and to inform the public repeatedly that all motor vehicle occupants should be buckled at all times and that all children ages 12 and under should ride properly restrained in the back seat. With very few exceptions, air bags should *NOT* be deactivated. Through in-office counseling and community speaking and writing, physicians have the opportunity to give advice that could save many lives in motor vehicle crashes.

Introduction

"Air bags save lives. But not if they're turned off." This message was directed to President Clinton in a full-page ad in *USA TODAY* in 1997, just prior to the decision of the National Highway Traffic Safety Administration (NHTSA) and the President about whether to allow "on-demand" on-off switches for air bags.[1] The ad was endorsed by the American Academy of Pediatrics (AAP) and 12 other organizations (advocacy, automobile manufacturers, auto dealers, and insurance companies). The day the ad appeared, representatives of the 13 organizations met with staff of the White House Office of Management and Budget. Resulting from these and other advocacy efforts, the decision was made, effective January 19, 1998, to permit individuals to request installation of an air bag on-off switch if they fit one of four risk profiles:

- drivers who cannot avoid placing rear-facing infant seats in the front passenger seat;
- drivers who transport more children ages 1 through 12 years than can safely fit in the back seat;
- drivers who cannot sit at least 10 inches away from the steering wheel; and
- those who have a medical condition that places them at high risk of air bag injury.

By January 1998 air bags had already saved more than 3,300 lives and had prevented hundreds of thousands of serious injuries, but had also resulted in 113 deaths in low-severity crashes since 1990. From these and other benefit and risk data, the Insurance Institute for Highway Safety (IIHS) concluded that only a "rare bird" should get air bag on/off switches.[2]

The IIHS noted that most drivers (even those as short as 4 foot-8 inches) could avoid air bag injury by always using a safety belt and sitting with a 10-inch clearance between the air bag cover and the sternum. They also noted that air bags pose no significant risk to properly-belted adult passengers who are not out of position in the vehicle. Front passenger risk is primarily to infants and children who are unrestrained or are improperly restrained. Air bag injuries and death to infants and children under 12 can be avoided simply by properly restraining them in the back seat.

An air bag is a form of medical therapy and, as with other therapeutic endeavors, one must weigh risks and benefits. Turning off passenger side air bags may place older children and adult passengers at risk and should only be done when no other option is available. In addition, safety belts and air bags in most vehicles are designed to work as a system; deactivating an air bag may compromise the protection provided by the safety belt.

This article provides counseling information and messages physicians can use in the office and the community to protect their patients and the public from automobile occupant injury.

Safe Transportation of Infants and Children

When counseling parents of infants and children, the following safety messages are extremely important:[3]

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- Although air bags save lives, air bags and young children do not mix.
- The safest place to ride for *all* infants and children ages 12 years and under is properly restrained in the back seat, whether or not the vehicle has an active passenger air bag.
- Infants must *always* ride in rear-facing car seats in the back seat until they are at least 1 year of age AND at least 20 pounds.
- *Never* put an infant less than 1 year of age in the front seat of a car equipped with a passenger air bag (unless you have a manual on-off switch with the switch turned off).
- If a child 1 year or older AND weighing at least 20 pounds must be placed in the front seat, the child must be properly secured in the correct forward-facing restraint, with the front seat moved as far back from the air bag module as possible; *never* allow the child to lean toward the dashboard. Seat the child least likely to move out of position in the front seat, keeping in mind that this child may still be at risk for injuries from the air bag.
- All children should be properly secured in appropriate car safety seats, booster seats, or shoulder/lap belts. (This means children over 1 year of age and between 20 and 40 pounds may be in forward-facing car seats, and children between 40 and about 80 pounds should be in belt-positioning booster seats. Children over 80 pounds can usually fit properly in a lap/shoulder belt.[4])
- Safety belts must be worn correctly at all times by all passengers to provide the best protection.

Parents can be reminded of the following:

- Plan ahead so that you do not have to drive with more children than can be safely restrained in the back seat.
- For most families, installation of an air bag on/off switch is not necessary. Air bags that are turned off provide no protection to older children, teens, parents, or other adults riding in the front seat.
- Air bag on/off switches should only be used (1) if your child has special health care needs, your child's physician recommends constant observation during travel *and* no other adult is available to ride in the back seat with your child, or (2) if the vehicle has no back seat.

Adolescents

Teenagers may benefit the most from an air bag, since they have the highest rate of safety belt non-use. Automobile crashes are the leading cause of death for adolescents ages 16 to 20 years. Teenagers constitute 7% of the US population but 14% of motor vehicle fatalities.[5] Physicians should counsel teenage drivers to use safety belts properly at all times and to sit at least 10 inches away from the air bag module. Unbelted or improperly belted teens can be out of position when the air bag deploys, they can submarine under the steering wheel, and they are at risk of mediastinal injuries if using a shoulder belt alone. To minimize the risk of hand injuries, their hands should be placed at the 9 o'clock and 3 o'clock positions on the steering wheel.

Counseling for adolescents and their parents should include safety belt use, attentive driving, and the dangers of impaired or fatigued driving. Physicians should support graduated driver licensing legislation.[5]

Teenage and adult passengers should always use properly fitted safety belts, avoid moving too close to the air bag, and keep laps and dash board free.

Children with Special Needs

When a child has special medical needs that may require attention during travel, parents are best advised to plan trips in advance, restrain the child properly in the back seat, and arrange for an accompanying adult to sit beside the child in the back seat. A driver cannot safely attend to the child, whether the child is in the front or the back seat, and drive without posing a risk to themselves and others on the road. Parents may also wish to travel with a cellular phone or other communication device in case of an emergency.

If the child requires emergency services, use EMS transport rather than a private vehicle. To attend to a child's immediate needs, safely pull the vehicle to the side of the road. Parents who stop to attend to a child should always move to the back seat with the child since most air bags remain active for a short time after the ignition is turned off.

Parents of children with challenging behaviors that might interfere with safe travel could benefit from counseling from their physician on behavioral alternatives. They might also consider intervention by a behavioral pediatrician or therapist to help their child sit safely in the back seat or consider the use of a safety vest if the child has difficulty staying in a car seat or safety belt.

Medical Indications for Air Bag Disconnection

In July 1997, a National Conference on Medical Indications for Air Bag Disconnection was held in Washington, DC.[6] An expert panel of physicians addressed a list of specific situations that might require air bag on-off switches. They concluded that *proximity* to the initially deploying air bag appears to be the central issue, rather than a person's height, and a medical condition does not warrant turning off an air bag unless the condition makes it impossible for the person to maintain a distance of at least 10 inches between the air bag module and the sternum of the driver.

The committee found **NO evidence to support disconnecting air bags for drivers or passengers who have the following:** pacemakers, implantable defibrillators, supplemental oxygen, eyeglasses, history of median sternotomy, angina, chronic lung diseases (COPD, emphysema, or asthma), breast reconstruction or mastectomy, previous back or neck surgery, previous facial reconstructive surgery or facial injury, hyperacusis or tinnitus, advanced age, osteogenesis imperfecta, previous ophthalmologic surgery, or pregnancy.

Also, **if a safe distance from the air bag can be maintained, air bags should NOT be disconnected for** achondroplasia, scoliosis, osteoporosis or arthritis, Down syndrome with atlantoaxial instability, short stature, or need for wheelchair (unless wheelchair installation or steering column configuration requires air bag removal).

The committee **recommended disconnecting air bags if a safe sitting distance or position cannot be maintained** by a driver because of achondroplasia, severe scoliosis or arthritis, or by a passenger with severe scoliosis or Down syndrome with atlantoaxial instability, or if an infant or child has one of the few medical conditions that must be constantly observed *and* no one is available to observe the child while properly restrained in the back seat.

For example, some children with tracheostomies, severe gastroesophageal reflux, uncontrolled seizures, or severe respiratory problems may require constant observation in the front passenger seat by the driver, if another adult is unable to accompany the child in the back seat.

Older children and adults with Down syndrome who have atlantoaxial instability may be at increased risk of atlantoaxial subluxation and possible cervical injury, particularly if their condition prevents them from consistently maintaining an upright position at least 10 inches from the air bag module.

The committee also stated that any future owners of vehicles with disconnected air bags should be clearly notified of this disconnection. As more data are collected, some of these recommendations may change. The effects of the new side air bags will also be studied and recommendations made as more data are available.

Other Considerations

Vehicles without a back seat that could accommodate a child restraint system often have available an air bag on/off switch, and the NHTSA allows families to petition for on-off switches of passenger air bags in these vehicles.

The most valuable contributions parents can make to their children's safety in a car is to learn how to select and properly install a restraint device appropriate for their child's age and weight—one that is compatible with the vehicle and its safety belt system.[4] Nationwide surveys and inspections show that 80% to 90% of car seat use is associated with an error, such as improper use of harness straps or harness clip or not installing the seat properly with the safety belt. Questions about specific models of car seats, vehicle/safety-seat incompatibilities, and related issues may be addressed to the NHTSA Auto Safety Hotline (phone 800-424-9393 or 888-327-4236), or to the Wisconsin Information Network for Safety [phone (WI only) 800-261-WINS (9467)].

Passengers are appropriately positioned when they are properly restrained and their heads and necks are kept out of the path of a deploying air bag. In the near future, "smarter" air bags will be developed. Integrated car seats, automatic air bag deactivation in the presence of a car seat, and sensors to detect unbelted or out-of-position passengers and crash severity are examples of mechanisms being developed to further protect passengers in vehicles with air bags. At this time, it is important that physicians be effective at in-office counseling and community advocacy regarding transportation safety. Additional updated information may be found at the NHTSA web site (http://www.nhtsa.dot.gov), the Child Passenger Safety Network web site (http://www.childsafety.org), or the AAP web site (http://www.aap.org).

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Clinical Pharmacology & Therapeutics

by Mahendr S. Kochar, MD, MS, and Paramjith S. Chawla, MD

Clinical Pharmacology

Several new drugs have been approved by the US Food and Drug Administration (FDA) in the last two years. This article summarizes primarily those belonging to a new class of drugs and considered significant advances in therapeutics.

Diabetes Mellitus

Repaglinide (Prandin) is a new oral short-acting hypoglycemic agent for treating type 2 diabetes. It is the first drug in a new class of oral hypoglycemics–meglitinides.[1-5] It acts like a sulfonylurea by stimulating the pancreas to secrete more insulin but it is chemically different from sulfonylureas. It is given 15 minutes before meals because of its rapid onset of action to reduce post-prandial hyperglycemia. This is different from acarbose (Precose) which lowers postprandial hyperglycemia by slowing carbohydrate absorption. Repaglinide lowers HbAIc about 2%, same as sulfonylureas. It also causes similar side effects of hypoglycemia and weight gain, however they are slightly less frequent than with sulfonylureas.

New hand-held inhalers that deliver insulin to the lungs are being developed.[6] This is an exciting field as insulin cannot be taken orally because of its degradation in the stomach. Inhalers use pressure to force the insulin through hundreds of tiny pores causing it to aerosolize. Inhaled insulin is rapidly absorbed from the lungs and has a quick onset of action. Insulin inhalers may replace injections of regular insulin, however, patients will still need to inject their long-acting insulin.

Erectile Dysfunction

About 30 million men in the United States suffer from erectile dysfunction (ED). Sildenafil (Viagra)[7-9] potentiates the physiological response causing penile erection after sexual arousal. During sexual stimulation nitric oxide (NO) is released from nerve endings and endothelial cells which binds to receptors on the smooth muscle of the corpus cavernosum and causes formation of cyclic guanosine monophosphate (cGMP) that relaxes smooth muscle allowing engorgement. The erection subsides when cGMP is converted to GMP by phosphodiesterase type 5 in the corpus cavernosum. Sildenafil inhibits this phosphodiesterase allowing erection to be prolonged. Sildenafil is effective in about 70% of men regardless of the cause for ED. It should be taken orally at least 1 hour prior to sexual intercourse and should not be repeated for 24 hours. The possible side effects include headache, hypotension, and a temporary bluish tinge in vision. Sildenafil should not be taken in conjunction with nitrates as two together can cause severe hypotension. Sildenafil can be safely combined with antihypertensives such as diuretics, beta-blockers, calcium-channel blockers and ACE-inhibitors.

HIV Infection

Three new antiviral drugs for HIV have been approved—nelfinavir (Viracept), nevirapine (Viramune) and delavirdine (Rescriptor).[10] Nelfinavir is the fourth protease inhibitor to become available in the United States and is used for patients with advanced AIDS with CD4 count <100 cells/cm when the other protease inhibitors such as ritonavir and indinavir cause intolerable side effects or for patients who have become resistant to them. It has been approved for treating HIV in both children and adults. Until recently, the only drugs approved for children were zidovudine, didanosine and lamivudine. Nelfinavir along with two nucleosides increases CD4 counts and lowers HIV RNA below detectable levels in patients with advanced HIV infection.

Nevirapine and delavirdine are the two new "non-nucleoside" reverse transcriptase inhibitors (NNRTIs) which act synergistically with nucleoside analogs such as zidovudine (AZT) didanosine (DDI, Videx) or lamivudine (Epivir) and produce results superior to those with two nucleosides alone.They are active against both nucleoside-sensitive and

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nucleoside-resistant stains of HIV. They must be used with more than one nucleoside analogs to avoid the problem of HIV resistance.[11]

Depression

Mirtazapine (Remeron) is the first drug in the new class of anti-depressants called alpha2 antagonists.[12] By blocking alpha-2 receptors it increases the release of norepinephrine and serotonin. Unlike the selective serotonin re-uptake inhibitors (SSRIs) or tricylics, it's not a reuptake blocker. It also blocks specific serotonin receptors, which decreases some of the side effects such as insomnia, nausea and anxiety often seen with SSRIs. In fact, mirtazapine has some anti-anxiety effects. It also doesn't seem to cause sexual dysfunction, hypotension, or tachycardia. Its side effects include drowsiness, increased appetite and weight gain similar to amitryptyline. Mirtazapine should be reserved for selected depressed patients who have insomnia or anxiety and can handle the increased appetite and weight gain.

Parkinson's Disease

Tolcapone (Tasmar) has now become available for Parkinson's disease.[13-17] It's the first drug in a new class called catechol-o-methyl transferase (COMT) inhibitors. It is used as an adjunct to levodopa/carbidopa (Sinemet) for treatment of Parkinson's disease in both stable patients and those with end-of-dose "wearing off" of levodopa. COMT is an enzyme that metabolizes levodopa to an inactive metabolite. Tolcapone blocks the plasma COMT and prolongs the half-life of levodopa and increases its availability to the brain. It acts as a "levodopa booster" and may allow the levodopa dose to be reduced by about 30%, thereby reducing levodopa-related adverse effects. The side effects may include diarrhea, dyskinesias and elevated liver enzymes.

Multiple Sclerosis

Two new drugs have become available for multiple sclerosis–glatiramer (Copaxone) and tizanidine (Zanaflex). Glatiramer reduces relapse rates and tizanidine reduces muscle spasticity. Glatiramer, also called copolymer-1 or "cop-1," is a polypeptide mixture resembling a protein component of myelin.[18-21] It blocks the auto-immune reaction against myelin by inhibiting the binding of myelin proteins to major histocompatibility molecules, leading to suppression of T-cell activation and induction of Suppressor T cells. It reduces the frequency of relapses by about 30%, but it hasn't been shown to slow the progression of the disease.

Tizanidine reduces muscle spasticity in patients with multiple sclerosis or spinal cord injuries.[22-24] It's the first new oral drug approved for spasticity since baclofen (Lioresal) about 20 years ago. Tizanidine is an alpha-2 agonist similar to clonidine, but much less potent in lowering blood pressure. It reduces spasticity by increasing presynaptic inhibition of spinal motor neurons. In several randomized double-blind trials, tizanidine was found superior to placebo[25] and as effective as baclofen in spastic patients with multiple sclerosis or spinal cord injuries. Rebound hypertension does not occur after stopping it and, therefore, tapering of tizanidine is not required.

Obesity

Sibutramine (Meridia) has become available for management of obesity, including weight loss and maintenance of weight loss.[26-28] It should be used in conjunction with a reduced caloric diet. Sibutramine is a serotonin and nor-epinephrine reuptake inhibitor which increases the concentration of these neurotransmitters in the brain, causing a feeling of fullness and early satiety. It is structurally related to amphetamine and is classified by Drug Enforcement Agency (DEA) as a Schedule IV controlled substance. Sibutramine is recommended for obese patients with an initial body mass index > 30, or >27 in the presence of other risk factors such as hypertension, diabetes, or dyslipidemia. It should not be combined with monoamine oxidase inhibitors (MAOIs), or other centrally acting appetite supressant drugs. Sibutramine causes dose-related increases in heart rate and blood pressure. Echocardiographic studies have not detected heart valve abnormalities that led to the removal of fenfluramine (Pondimin) and dexfenfluramine (Redux) from the market, however the long-term safety of sibutramine has not been established.

Smoking

Quitting smoking is never easy, no matter how hard a person tries.[29] Bupropion (Wellbutrin, Zyban), an antidepressant may help smokers in this.[30] Bupropion is the first non-nicotine drug for smoking cessation. It helps decrease cravings and some nicotine withdrawl symptoms. It acts by increasing dopamine and norepinephrine, two of the neurotransmitters stimulated by nicotine. Patients can use this drug alone or with nicotine replacement. Success rate of 4-week quitting is 50% for patients using bupropion compared to 36% for nicotine patches. Combining the two increases quit rate to around 60%.

Another new development in this field is the introduction of nicotine inhaler and nicotine nasal spray. Nicotine inhaler is used like a cigarette, providing the comfort of hand-to-mouth ritual for about 20 minutes and one-third the nicotine an average cigarette delivers.[31] Instead of lungs, most of the nicotine is absorbed in the mouth which causes a slower onset similar to a nicotine gum. It can cause mouth or throat irritation and cough. Nicotine nasal spray works like patches or gum but the drug is absorbed faster causing some patients to get hooked on it,

therefore, the spray should not be used for more than 3 months.

Tuberculosis

After a gap of 25 years, a new drug– rifapentine (Priftin) is approved for tuberculosis.[32] It belongs to the same class as rifampicin (Rifampin) but rifapentine is long acting and needs to be taken only twice a week for 2 months, followed by once a week for 4 months leading to better compliance. Its side effects and drug interaction are similar to those with rifampicin—red or orange urine, sweat and tears, nausea and possible hepatotoxicity.

Pain

There is a lot of interest in a new class of pain relievers, cyclooxygenase-2 (COX-2) specific inhibitors—celecoxib (Cerebrex) and rofecoxib (Vioxx). Aspirin and non-steroidal anti-inflammatory drugs (NSAIDs) act by inhibiting both COX-1 and COX-2.[33] COX-2 is the cyclooxygenase that produces prostaglandins that cause pain and inflammation while COX-1 is the cyclooxygenase in the stomach that helps protect the gastric mucosa. COX1 is also the version in platelets that causes aggregation. The COX-2 inhibitors are significantly more selective for COX-2 than any currently marketed NSAID.[34]

Respiratory Allergy/Asthma

Leukotriene receptor antagonists (LTRA) are a new-class of oral medications, useful in treatment of asthma.[35] Leukotrienes are pro-inflammatory substances released from mast cells when exposed to allergens. In the lung they can trigger bronchoconstriction, inflammation, edema, mucus secretion and recruit inflammatory cells such as eosinophils. The drugs in this category include zafirlukast (Accolate) and zileuton (Leutrol). Zafirlukast acts by blocking the effects of leukotrienes whereas zileuton blocks the production of leukotrienes. They should be used when inhaled steroids prove insufficient in preventing attacks of asthma.

Two new steroid inhalers have become available—fluticasone (Flovent) and budesonide (Pulmicort) –for the treatment of asthma.[36,37] These newer steroids have less systemic absorption than beclomethasone (Vanceril) which at higher doses carries a small risk of slowed growth in children and osteoporosis or glaucoma in adults.

FDA has approved the antihistamine, clemastine (Tavist), for treating colds as convincing studies are now available that runny nose and sneezing can be relieved by antihistamines[38] such as clemastine, chlorphenaramine and doxylamine. These are effective as they have anti-cholinergic or drying effects. The non-sedating antihistaminics such as fexofenadine (Allegra), cetrizine (Zyrtec), etc., are not as useful because they have little or no anti-cholinergic activity.

An improvement in the treatment of COPD is the availability of Combivent, an inhaler that combines two bronchodilators, the anticholinergic, ipratropium (Atrovent) and the beta-agonist, albuterol (Ventolin).[39,40] Combivent should be used as third-line therapy after a steroid and beta agonist inhalers have failed.

Vaccines

A new acellular pertussis vaccine (Tripedia) has been approved for infants.[41] This is a major advance as the acellular vaccines cause significantly fewer side effects such as redness, fever, swelling and even seizures, brain-damage and deaths. The acellular vaccine (DTaP) contains only the parts of the bacterium that provide immunity, whereas the older pertussis vaccines in DTP contains the whole killed bacterium.

Since the beginning of 1997, the CDC recommends using the injectable inactivated polio vaccine (IPV) for the first two doses followed by two doses of the oral polio vaccine (OPC). This is to reduce the risk of paralytic polio in susceptible children or their contacts.[42] The injectable vaccine doesn't contain live virus so it cannot cause polio. Use of OPV or all IPV is, however, still acceptable.

Hemophilus influenza type B (HIB) and hepatitis B vaccines for children are now available in a combined form as Comvax.[43] This is to simplify the vaccination schedule and reduce the number of injections.[44] Comvax is given as a 3-dose series at 2, 4, and 12 to 15 months. The other pediatric vaccines can also be given at the same visits.

A new rabies vaccine–RabAvert, prepared in purified chick embryo cell culture (PCEC)–has become available in the United States for pre- and post-exposure prophylaxis. Human rabies is rare in the U.S., but thousands of people receive post-exposure prophylaxis every year.[45] The widely used HDCV (Human Diploid Cell Vaccine) (Imovax) is associated with a 6% incidence of serum sickness-like (type III) hypersensitivity reactions to booster doses given months or years after the primary series.[46] In people at high risk of being exposed to rabies virus, antibody responses with PCEC vaccine are similar to those with the HDCV vaccine. Also, PCEC has been 100% effective in preventing rabies in patients with severe exposures.[47]

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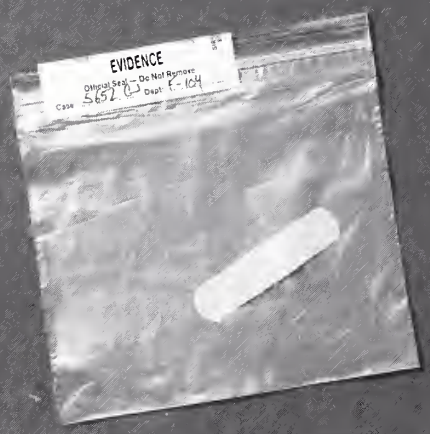
exhibit A:

Adhesive bandage, which plaintiff alleges defendant pulled rapidly from skin, violently tearing three hairs from plaintiff's arm, which resulted in severe shock, trauma, disfigurement, chronic debilitating pain and permanent psychological damage.



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Guest Editorial

MORP: We Have Come a Long Way

by Jerry M. Ingalls, MD, FACS, and Cindy Peterson Helstad, PhD, RN

This issue of *WMJ* marks a milestone in the evolution of the Medical Outcomes Research Project (MORP). Initiated in 1994, MORP is actually four research studies concerned with defining and measuring health care quality. By quality we mean the patient's capabilities for life and living after an episode of acute or chronic illness. The MORP studies have developed in response to our concern that data about health care costs alone tell us little or nothing about effective treatments.

The initial findings of the Adult Asthma Outcomes Study and the study plan for the Pediatric Asthma Outcomes Study are reported in this *WMJ* (p. 34 and 39). The Adult Asthma baseline results offer a glimpse into the future of quality evaluations of health care defined by both process and outcome measures. Outcomes refer to the effect of care as perceived by patients in terms of symptomatic relief, functional level, quality of life and satisfaction with care.

Despite several difficulties in doing research in busy office practices, we consider this interim report a milestone because we have been able to break down the barriers that make obtaining patient-reported data difficult. To the degree that the data help improve the patient-physician relationship and result in improved care and quality of life for patients living with asthma, it will have been worth it.

What have we learned? The enthusiastic physician participation in this quest to improve care re-invigorates the doctors' commitment to be patient advocates, and provides them "value-added" benefits as a result of their contributions to the pilot outcomes studies. The study groups' accomplishments have made us a national leader in a field sure to be an integral part of medicine's future. Already, demand for our services is increasing. For example, the Michigan State Medical Society has invited us to present our outcomes research program and the lessons we have learned.

Here is a summary of our assessment of the project thus far.

- Confidentiality of patient/physician data is essential.
- The program to support physicians and their patients involved in outcomes data collection is expensive.
- The program is labor intensive.
- The need to train the physician's staff is integral to successful data collection.
- Comparability is the core of success, that is, each office cannot invent its own questionnaire.
- This is a program that is an example of "professional responsibility" in the medical profession.
- Outcomes research allows us to be advocates for our patients.
- We have given a measurable definition to "quality."
- Outcomes research allows us a strong voice at the table on health care cost/quality.
- This type of outpatient research can be accomplished.

We have made these discoveries with the significant involvement of dedicated physicians who have been pioneers in outcomes research. Thanks to the effort of many people, MORP has given the State Medical Society the opportunity to take a vision, make it grow, and offer Wisconsin physicians a professionally-responsible program to begin to answer the demand for information about health care quality. The work of our council, our task forces and task force chairs, as well as those clinics and patients who have participated in the pilot studies, have been crucial to our progress.

We also recognize the financial contributions of individual physicians, many county medical societies, businesses, industries and the philanthropy of several of our largest contributors including Glaxo Wellcome Inc., Merck and Company, Physicians Insurance Company of Wisconsin, PrimeCare Health Plan, Inc., Roche Laboratories, the State Medical Society of Wisconsin, and Wisconsin Physicians Service Insurance Corporation. Their

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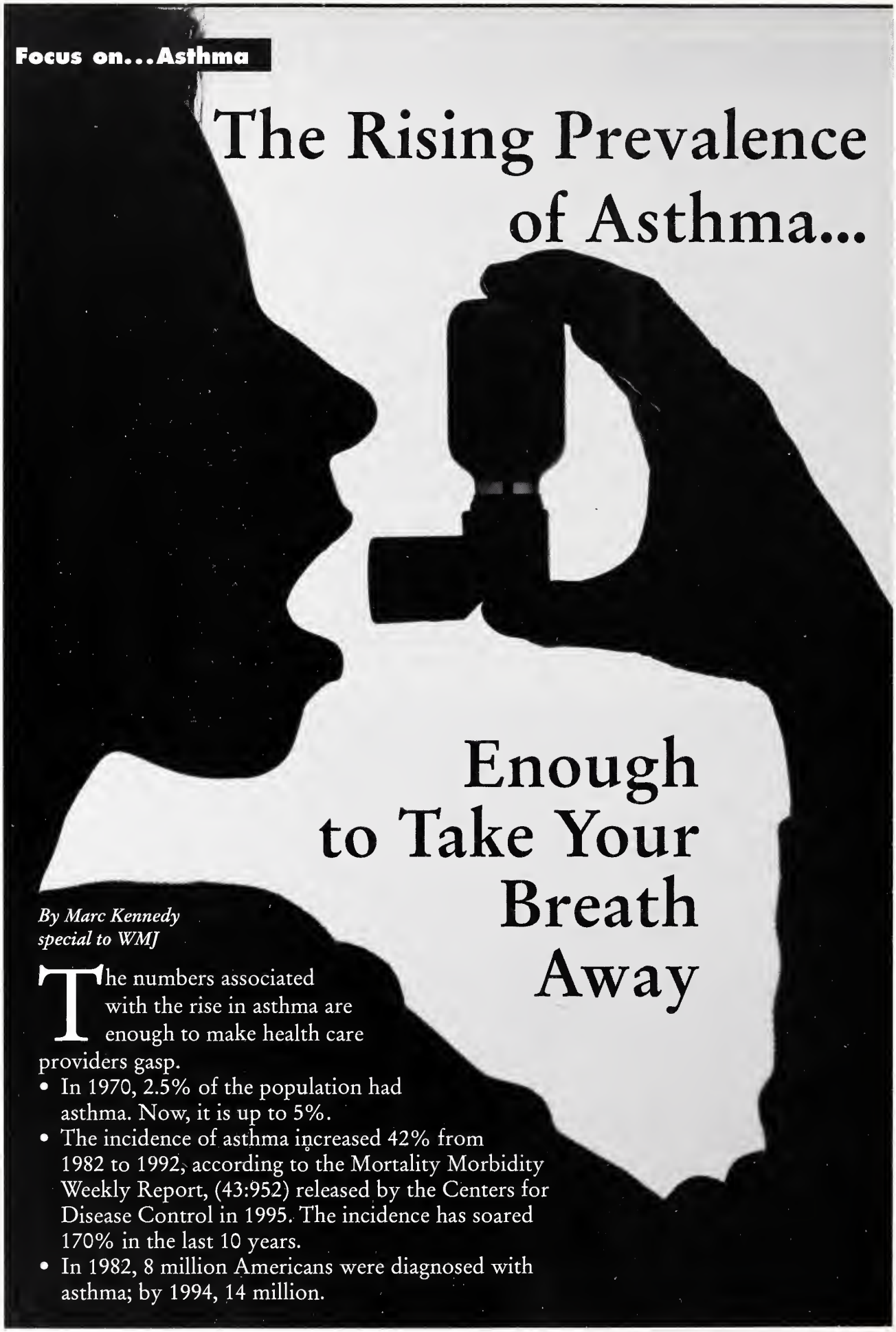
Doctor Ingalls chairs the State Medical Society of Wisconsin's Council on Medical Practice Research and Education. He recently retired as Medical Director and Director of Occupational Medicine for the Monroe Clinic. Doctor Helstad is Director of the Henry A. and Irene S. Anderson Center for Medical Practice Research and Education at the State Medical Society of Wisconsin.

The Rising Prevalence of Asthma...



Enough to Take Your Breath Away

By Marc Kennedy
special to WMJ

The numbers associated with the rise in asthma are enough to make health care providers gasp.

- In 1970, 2.5% of the population had asthma. Now, it is up to 5%.
- The incidence of asthma increased 42% from 1982 to 1992, according to the Mortality Morbidity Weekly Report, (43:952) released by the Centers for Disease Control in 1995. The incidence has soared 170% in the last 10 years.
- In 1982, 8 million Americans were diagnosed with asthma; by 1994, 14 million.

Why the dramatic increase? Few concrete answers exist. Diagnostics have improved, but undoubtedly that's only part of the puzzle.

"Some suspect it's related to air quality both indoors and outdoors," said John Meurer, MD, MM, assistant professor of pediatrics and an asthma health services researcher at the Medical College of Wisconsin. "Dust. Mold. Mildew. Second-hand smoke; cockroaches; urban pollution. A few think it's related to increased use of bronchodilators used to treat asthma that may be actually exposing lungs to a more noxious environment."

None of this is yet proven.

"We do spend more time indoors," said Elaine Mischler, MD, medical director, Medical Management Services at Wausau Insurance. "Energy-efficient houses built in the last 30 years or so are much more air-tight. So, we are exposed more to allergens. The house dust mite is the worst; they are a key asthma trigger, causing inflammation and bronchospasms."

There is some speculation that the increase in asthma is due to more frequent diagnosis coding on bills. However, according to Meurer, a few studies in the 1980s did not identify an association between changes in ICD coding and increased prevalence rates, hospitalizations, and mortality rates among children with asthma.

"Under age 2 or 3, it's hard to identify. If you see a pattern of recurrent episodes of bronchitis, chronic coughing, wheezing, it's most likely asthma, especially with a strong family history of atopic disease. Doctors need to use judgment in these cases. They will sometimes treat appropriately without labeling asthma. I suspect it's under-diagnosed in younger kids. A concern is a child with undiagnosed asthma who may be treated repeatedly with antibiotics rather than with inhaled anti-inflammatories and bronchodilators. It's an important clinical diagnosis and we need to be accurate."

One physician conducting research notes that the increase in asthma has been especially high for children under age 5.

> *Asthma is the number one reason kids are admitted into the hospital with 4,000 emergency room visits a year and 2,000 inpatient stays at Children's Hospital of Wisconsin alone. The next highest cause is babies with fevers. That's at about 350 per year.*
>
> *John Meurer, MD*

"We are investigating the role of early life events," said Robert Lemanske, MD, professor of pediatrics and medicine at the University of Wisconsin Medical School, "mainly two components: heredity and exposure to a viral respiratory infection at a young age. We're hypothesizing that if a kid who already has one 'hit' — a genetic atopic predisposition — who gets a second 'hit' by contracting the right virus at the right time, there will be at an increased risk of developing asthma."

Lemanske's research is focused toward identifying some of these early risk factors (*see accompanying story p. 26*).

In addition to the increase in incidence, the death rate due to asthma has increased.

"It has gone up nearly 40%, according to the Mortality Morbidity report for 1982-1991," said Mischler. "The numbers are particularly high in black and Hispanic Americans. Their incidence of having severe asthma is much higher. The cause of increased mortality is not completely understood. It could be related to allergenic exposure in inner cities, genetic predisposition, and likely a combination of the two."

Whatever the causes, experts estimate that the costs nationally both indirect and direct to asthma reach about $6.4 billion.

"What I do know is that asthma is the number one reason kids are admitted into the hospital," said Meurer, "with 4,000 emergency room visits a year and 2,000 inpatient stays at Children's Hospital of Wisconsin alone. The next highest cause is babies with fevers. That's at about 350 per year."

Challenge for Physicians

To help physicians address the growing needs of the increasing numbers of patients who develop asthma, the National Heart, Lung and Blood Institute (NHLBI) has developed treatment guidelines which are readily available on the Internet at www.nih.gov. The "Stepwise Approach for Managing Asthma in Adults and Children Over 5 Years Old" included in this issue (p. 30) presents general guidelines to assist clinical decision making.

"The biggest challenge is to disseminate these guidelines among health care providers and to ensure that they understand them," said Mischler. "We have to think about the disease differently. We had a different definition of asthma in the 1950s. We just thought that the lungs would open up if we gave the right drug. But now we have to look at it as a chronic inflammatory disorder, which we have to diagnose properly and classify as to severity. We can no longer consider asthma only as a reversible airway narrowing."

Traditionally, the focus was to treat asthma as bronchospastic events using inhalers. "This has caused some problems," said Michael Ostrov, MD, medical

COAST Project Studying Asthma's Cause

By Marc Kennedy, Special to WMJ

Do the chances of a child developing asthma depend on nature, nurture, a little luck, or a combination of all three? A new federally-funded study of involving 200 expectant families in the Madison area may provide the clues.

The COAST project (Childhood Origins of Asthma) is testing the hypothesis that children who develop asthma have both a genetic predisposition and an early exposure to certain viral infections.

"Not everyone who has allergies develops asthma," said study principal investigator Robert Lemanske, University of Wisconsin Medical School professor of pediatrics and medicine. "Something has to direct that allergic response into the lower airway. We suspect that this may be a viral respiratory infection."

Studies show that young children with asthma may have a genetic cytokine imbalance. They have too many TH-2 cells secreting cytokines that help promote allergic reactions and not enough generated by TH-1 cells. In the laboratory, Lemanske has shown that animals need to experience both the hereditary cytokine imbalance and exposure to a respiratory virus that causes respiratory infection prior to the animals developing many of the characteristics of human asthma.

"We suspect that this two-hit combination can lock a child into developing asthma," said Lemanske. "So we are in the midst of enrolling 200-plus families into our study to help determine whether this is true."

To be eligible, either or both parents must have a history of allergies or asthma, and the mother needs to be expectant. At birth, Lemanske's team takes a sample of the newborn's umbilical cord blood, which is then evaluated in his laboratory for evidence of the cytokine imbalance.

"That is the first 'hit,'" explained Lemanske. "The second 'hit' is if they contract the right virus at the right time. We will follow the study children over the course of three or four years, taking nasal mucus samples when they come down with a respiratory illness. The Wisconsin State Lab of Hygiene is participating in the project by comprehensively evaluating these sampes to document a viral etiology for the symptoms."

Lemanske is obviously excited about this unique "purely natural history study," funded with a $1.3 million grant from the NIH. And he is gratified by the cooperation of area hospitals and clinics.

"It's pretty amazing," he said. "We announced the study in November, and already we have nearly 140 families who have consented to participate in the COAST project. It's really a credit to my colleagues at Meriter and St. Mary's and at all the smaller clinics and practices in Madison and the surrounding communities that we've done so well so far. We even have mothers on the verge of delivery asking where they can sign up."

Along with UW colleagues James Gern, MD, and William Busse, MD, Lemanske hopes the study will generate information that they can use to help identify children most susceptible to developing asthma as early as possible.

"The earlier that you recognize and treat the disease, the better chance to conserve lung function," he said. "You may not be able to prevent it, but you can control it, both in childhood and adulthood by treating patients with the right medications at the right time."

For more information about the COAST project and other UW allergy and asthma research programs, call (608) 263-8539.

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director of Group Health Cooperative in Madison. "Some asthmatics have used reliever inhalers too frequently. They don't realize that the underlying asthma is getting worse. Some people have died because their inhalers no longer controlled their asthma.

"The core of treatment now is to regularly use controlling medication every day for long-term treatment, and use certain inhalers such as reliever bronchodilators for serious bouts.

"We need to treat asthma as a chronic illness," said Ostrov. "Doctors, nurses, physicians assistants all need to spend more time educating their patients with asthma in this way—understanding the need for care maintenance, the ability to identify triggers for asthma, and how to respond appropriately to acute attacks. Patients need to have treatment plans in place which they can understand and follow."

Part of the educational process, added Ostrov, is that patients need to understand that it isn't all up to the medical establishment.

"Patients have to know that they need to take some personal responsibility for their asthma care," he said. "They have to know the triggers, and how to self-

monitor their condition. They need to remember to routinely blow into a peak flow meter to see how open their lungs are. They need to develop a sense of how well they feel, and what they need to do when they feel there is a problem developing with their asthma."

More patients are adhering to these asthma treatment plans, and are using different types of biofeedback to help analyze and monitor their illness, said Ostrov.

The NHLBI guidelines can help physicians and other health care providers identify symptoms appropriately, in one of four classifications: Severe Persistent, Moderate Persistent, Mild Persistent, and Mild Intermittent. This in turn will help determine the best therapeutic approach. But eliciting this information may not be as easy as obtaining a temperature.

"Doctors will have to take time to get the right story out of the patient," added Mischler. "People's perceptions of how they breathe are based on subjective interpretations of how they feel. If I just ask them if they're OK, they'll say 'yes.' But when I ask them if they have been sleeping through the night this week, or if they have been able to participate in sports, they will be more specific. That's what you have to do to get the right information."

There is also the issue of using the right types of medication to treat the illness.

"We have to know how to use drugs properly, for example steroids," she said. "We need to know the side effects, and must weigh this significance against improvement regarding asthma. I personally feel that inhaled steroids are safe when used appropriately, even in children."

While Meurer agreed that steroids are the mainstays for good control for persistent asthma, he noted that some physicians and parents worry about their side effects on young children.

"There's that tension at play," Meurer said. "Long-term use of inhaled steroids may slow growth but significantly improve lung function and overall quality of life. Close monitoring for uncommon side effects is essential."

A new generation of medications is being developed, added Ostrov, "New, longer acting pills. They can give kids relief at bedtime through the night."

Early diagnosis is just as important as proper use of medications, according to Mischler. "Keep in mind that the earlier asthma develops, the more rapidly lung function declines. If not treated effectively in time when someone is young, it can lead to permanent remodeling of the airways. This begins when you start having asthma symptoms, and the process continues even when symptoms are not evident."

Health care providers need a treatment plan to help them keep

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track of patients and how well they are doing in controlling their asthma.

"It is difficult when you only have 10 minutes to see a patient," she said. "That isn't much time to get a history, physical and discuss how well their medications are working."

It gets more complicated when people need spacers to make sure the medication goes into the airway and they need peak flow meters to test lung function.

"Physicians need to develop an asthma action plan for their patients to make sure the disease is effectively treated. And the patients need education to make sure their asthma is self-managed properly. There needs to be a strong partnership between doctor and patient. We need to continuously work with patients to effectively treat their asthma."

Having a treatment plan cannot prevent asthma, according to Ostrov, "but you can minimize the degree of an attack by knowing the triggers and how to properly address them." Triggers include airborne allergens, exercise and environmental irritants.

Though asthma should be treated seriously, it does not have to limit activities kids can be involved in, even athletics.

"However, it is important for parents to coordinate with school nurses and staff," Ostrov added. "This has really helped out kids, to make sure everyone is on the same page with the treatment plans, rather than just having kids carry around an inhaler."

Guidelines a Good Start

There are no easy answers to the dramatic rise in asthma. Promoting the NHLBI guidelines, however, is a good start, according to Mischler.

"What would I like to see happen?" she said. "I wish I could join a traveling road show to talk about asthma. When I was at Medical College of Wisconsin, we went all over Milwaukee, any place we were asked to talk about asthma. There is nothing I'd like more that to take a sabbatical for 6 months and give CME lectures about asthma control."

Admittedly, said Mischler, this is not a new concept. But she is serious about promoting the word on asthma guidelines. There may be some uncertainty about the origin of the latest rise in the illness, but there seems to be professional consensus on how to diagnose and treat to minimize the harmful effects. It's now a matter of education, for health care providers as well as the patient public.

"We have to keep doing this," said Mischler, "because there is no reason that people with asthma shouldn't be healthy."

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Gundersen Clinic, Ltd., is seeking BC/BE Family Practitioners for a variety of opportunities located in southwestern Wisconsin, northeastern Iowa and southeastern Minnesota to be part of Gundersen's regional rural network, a system staffed primarily with Family Physicians. Gundersen Clinic's regional rural network is supported by both on-site and immediate phone consultative services (Medlink) and from the 300 plus multi-specialty physician group in La Crosse, Wisconsin.

Gundersen Clinic offers competitive salaries and excellent fringe benefits.

If you are looking for a practice that has all the positives of rural life, coupled with the strengths and support of a large multi-specialty teaching institution, please send letter of application and Curriculum Vitae to Frank Perez-Guerra, Manager, Recruitment, Retention and Resource Planning, Gundersen Clinic, Ltd., 1836 South Avenue, La Crosse, Wisconsin 54601; or call 1-800-362-9567, extension 6325.

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The West Union practice includes six community clinics, with the hospital and main practice located in West Union. The practice currently includes five Physicians (including a General Surgeon) and four Physician Assistants. Obstetric practice is highly desirable. Call is 1:4. Gundersen Clinic offers competitive salaries and excellent fringe benefits.

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Participants in the Milwaukee Health Education Center's "Awesome Asthma School Days" use keypads to participate in pre- and post-test activities. The program was designed to help improve children's asthma knowledge.

The State of Asthma in the State of Wisconsin

By Marc Kennedy, special to WMJ

The incidence of asthma is rising in Wisconsin, but so are efforts to combat it. From Milwaukee to Wausau to Madison, from major medical centers to neighborhood clinics, health care providers are banding together to collect baseline data, educate themselves and patients, and conduct basic research that will hopefully stem the increase of asthma.

Start with the Hillside Clinic in inner city Milwaukee. The growing number of children in the neighborhood developing asthma and related breathing problems disturbed parents, teachers and health care providers.

"So they decided to do something about it," said Elaine Mischler, MD. Before moving to Wausau, she worked with the asthma committee at the clinic while teaching at Medical College of Wisconsin (MCW). "These people promoted asthma education, they held health fairs, they screened kids, all to make sure that the kids who needed care were getting it. If it looked like a child had asthma, they had them blow into a portable spirometer. If the kids weren't getting treatment, they would try to get them into the clinic.

"One of the main issues was lack of access to treatment," she said. "So many people used the emergency room for their primary health care. We tried to get appropriate equipment available at home to reduce ER visits in case of acute attack. For example, having a nebulizer at home can prevent the kids from going to the ER. But for that to happen, it's key for the physician to know when to prescribe a nebulizer or when to send a child to a specialist."

The project raised awareness about asthma for families, children and health care providers.

"Everyone learned that if you have symptoms, you have to go see somebody who can help you treat

Stepwise Approach for Managing Asthma in Adults and Children Over 5 Years Old: Treatment

Preferred Treatment in Bold Print

	Long-Term Control	Quick Relief	Education
STEP 1 MILD INTERMITTENT	• No daily medication needed.	• Short-acting bronchodilator: **inhaled beta$_2$-agonists** as needed for symptoms. • Intensity of treatment will depend on severity of exacerbation; see "Managing Exacerbations of Asthma." • Use of short-acting inhaled beta$_2$-agonists more than 2 times a week may indicate the need to initiate long-term-control therapy.	• Teach basic facts about asthma • Teach inhaler/spacer/holding chamber technique • Discuss roles of medications • Develop self-management plan • Develop action plan for when and how to take rescue actions • Discuss appropriate environmental control measures to avoid exposure to known allergens and irritants.
STEP 2 MILD PERSISTENT	Daily Medication: • **Anti-inflammatory:** either **inhaled corticosteroid** (low dose) or **cromolyn or nedocromil** (children usually begin with a trial of cromolyn or nedocromil). • Sustained-release theophylline to serum concentration of 5-15 mcg/mL is an alternative. Zafirlukast or zileuton may also be considered for patients $\geq$ 12 years of age, although their position in therapy is not fully established. Montelukast can be used in children $\geq$ 6 years of age.	• Short-acting bronchodilator: **inhaled beta$_2$-agonists** as needed for symptoms. • Intensity of treatment will depend on severity of exacerbation; see "Managing Exacerbations of Asthma." • Use of short-acting inhaled beta$_2$-agonists on a daily basis, or increasing use, indicates the need for additional long-term-control therapy.	Step 1 actions plus: • Teach self-monitoring • Refer to group education if available • Review and update self-management plan.
STEP 3 MODERATE PERSISTENT	Daily Medication: • Either - **Anti-inflammatory: inhaled corticosteroid** (medium dose) OR - Inhaled corticosteroid (low-medium dose) and add a long-acting bronchodilator, especially for nighttime symptoms: either **long-acting inhaled beta$_2$-agonists,** sustained-release theophylline, or long-acting beta$_2$-agonists tablets. • If needed - Anti-inflammatory: inhaled corticosteroids (medium-high dose) AND - Long-acting bronchodilator, especially for nighttime symptoms; either **long-acting inhaled beta$_2$-agonist,** sustained-release theophylline, or long-acting beta$_2$-agonist tablets.	• Short-acting bronchodilator: **inhaled beta$_2$-agonists** as needed for symptoms. • Intensity of treatment will depend on severity of exacerbation; see "Managing Exacerbations of Asthma." • Use of short-acting inhaled beta$_2$-agonists on a daily basis, or increasing use, indicates the need for additional long-term-control therapy.	Step 1 actions plus: • Teach self-monitoring • Refer to group education if available • Review and update self-management plan • Consider referral to asthma specialist for consultation or co-management
STEP 4 SEVERE PERSISTENT	Daily Medications: • **Anti-inflammatory: inhaled corticosteriod** (high dose) and • Long-acting bronchodilator: either long-acting inhaled beta$_2$-agonist, sustained=release theophylline, or long-acting beta$_2$-agonist tablets AND • Corticosteroid tablets or syrup long term (2mg/kg/day, generally do not exceed 60mg per day.).	• Short-acting bronchodilator: **inhaled beta$_2$-agonists** as needed for symptoms. • Intensity of treatment will depend on severity of exacerbation; see "Managing Exacerbations of Asthma." • Use of short-acting inhaled beta$_2$-agonists on a daily basis, or increasing use, indicates the need for additional long-term-control therapy.	Steps 2 and 3 actions plus: • Refer to individual education/counseling • Refer to asthma specialist for consultation or co-management

The stepwise approach presents general guidelines to assist clinical decision making. Asthma is highly variable. Clinicians should tailor specific medication plans to the needs of individual patients. Gain control as quickly as possible. Either start with aggressive therapy (e.g. add a course of oral steroids or a higher dose of inhaled steroids to the therapy that corresponds to the patients initial step of severity a step down treatment if necessary. A course of oral steroids may be needed at anytime. US Dept. Health and Human Services-National Heart Lung and Blood Institute NIH Publication NO. 97-4053 Oct. 97

it," said Mischler, who added that a more comprehensive program is collecting baseline data while laying the groundwork for improving asthma diagnosis and care throughout the Milwaukee area: the POSITIVE Program.

With generous funding from the Medical College of Wisconsin and the Children's Hospital of Wisconsin, the POSITIVE Program aims to improve the health of children with asthma in Milwaukee. The project is a good example of multi-institutional cooperation, according to one of the key organizers, John Meurer, MD.

"The POSITIVE Program is a wonderful means to improve care by involving so many people and so many projects," said Meurer, a pediatrician at MCW. "We are looking at controlling tobacco smoke, improving control and prescription of anti-inflammatory medicines, using written asthma self-care plans. And, based on a recent survey conducted as part of this project, we have a lot to cheer about."

The Milwaukee Childhood Asthma Project polled parents of 376 children with asthma and found that the various efforts were beginning to pay off:

- two-thirds of parents rated the quality of care their children received as good or excellent,
- about one-half of the kids used a written asthma management plan to guide self-care,
- more than 60% had received an influenza vaccine in the last year.

On the not-so-positive side:

- two-thirds of the children missed school due to asthma within the last year,
- more than half had emergency room visits for asthma in the last year.

In an attempt to spread the word about procedures and programs that successfully combat asthma, components of the POSITIVE Program were created with Milwaukee schools and local clinics closely involved. More than 1,000 children were surveyed last year at the Health Education Center's "Awesome Asthma School Days."

"This helped get the word out to school kids as well," said Meurer. "Follow-up showed the use of spacers increased dramatically, from 28% to 60%. Use of peak flow meters increased modestly, from 35% to 42%.

"Projects like this and the Asthma Management Workshop, which helped improve asthma knowledge and nurses' skills, can make a real difference," he added. "We can teach patients and health care providers about the importance of creating self-care plans, how to identify triggers, and how to use inhalers and medications appropriately. We can reduce the risk of developing symptoms, the foremost of which is triggered by tobacco smoke, and to avoid allergens; how to reduce spreading dust by keeping the carpet clean; removing mold and mildew by cleaning with chlorine bleach; removing cat and dog dander. If you have a pet, at the minimum don't let the cat or dog in bed if the kid is allergic. Some are allergic to both or one. You don't necessarily have to get rid of the pet, just make sure the kids wash their hands after playing with them and don't let them sleep near one another."

Mischler participated in the Awesome Asthma program, which left a lasting impression.

"During the health fair, a little boy and I were talking about his breathing, how he found it difficult to sleep through the night sometimes," she recounted. "I told him that he could take medication using a puffer that could help him do that. I said I'd write the type of medication on a slip of paper so he could show his parents and they could refer to it when they went to the doctor. He said he was afraid he might lose the paper, then asked if I would write it on his hand.

"I called the school later and made sure the boy got the right meds. When I talked to him later, he said excitedly that he could really breathe. It exemplified to me the need to get parents, kids, schools and health care providers all in the same loop when it comes to treating asthma."

Mischler described the assorted asthma education projects and activities developed with input and funding from numerous sources.

"With funding from Medical College of Wisconsin, we developed a sticker system for kids to help them identify the type of inhaler they were using," she said. "With help from a pharmaceutical company, we created a set of asthma education flash cards that dealt simply but thoroughly with important information that patients and their families should know. It was impressive to work with so many dedicated people that worked so well together."

Mischler was also involved in the Teach Asthma Management Program.

"Knowing that doctors' office time is tight, we knew we needed to help educate staff who had more patient contact," she said. "So we invited nurses and other providers to a half-day workshop to teach principles of using national guidelines, an asthma toolkit, etc. We had 22 nurses come the first time. When we surveyed them 6 months later, one of the most telling findings was that of these nurses from 15 clinics, 12 responded. Before the workshop, 7% said they had provided patients

Asthma Resources

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Asthma In America
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with written asthma action plans. Afterward, it was 58%.

"We're doing it again in June. It takes a lot of time and effort from volunteers, but you get a big bang for your buck," Mischler said.

Through efforts like these, the word about diagnosing and controlling asthma is slowly but surely getting out.

"Families are learning how to treat allergies, to take antihistamines, to see their family doctor more often. All of these help to control asthma," Meurer said.

Though Mischler is now in Wausau, she finds no lack of interest in asthma education.

"I have no problem getting speaking engagements," she said. "For example, we do many insurer in-service training seminars to keep clinical staff up to speed with asthma control practices. I find that people respond well when you have up-close and personal conversations. The best way to share information and knowledge to is to go out to offices and clinics and make it simple. Sometimes, the guidelines can be complex, so we've helped develop basic tools that help health care providers help their patients."

Those tools include two versions of a two-sided laminated card summarizing asthma guidelines: one is for patients under 5, one is for patients over 5 (*see guidelines on p. 30*). Information includes medications and education requirements for patients on one side, and how to classify severity and long-term medication on the other.

"We just began using the care as part of a three-county continuous quality improvement program designed to manage diseases, like diabetes and asthma," said Rick Reding, MD, internal medicine with Wausau Regional Health. "We took the National Heart, Lung and Blood Institute information, and put it into a user-friendly format, outlining treatment strategies. We plan on doing follow-up research on the effectiveness. We have some initial claims data regarding inhaler usage; we hope that we will see usage of agonists go down and anti-inflammatories go up.

"So far, providers think it will be helpful. The guidelines list good information."

Another approach to treating asthma involves altering how clinics and large health care entities approach the illness. Rather than looking at each patient individually, Michael Ostrov, MD, says managing asthma system-wide could better monitor patients' status and reduce medical emergencies.

The SMS Adult Asthma Study prepares clinic-level reports for physicians to evaluate their clinic's performance in comparison to other participating clincis.

"We're working to improve asthma patient care across the

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board," said Ostrov, who is medical director at Group Health Cooperative (GHC) in Madison and a member of the SMS Adult Asthma Study committee. "We presented the first round of results of a 2-year study at the SMS annual meeting. We surveyed seven practices around the state testing three areas relating to asthma: daily lung function, how well the patient is doing regarding their illness, and their satisfaction of care."

Preliminary results indicate that most of the practices are doing well in these areas.

"The next step is to create models based on those that work best among these test practices, then disseminate this information for others to use," Ostrov said, adding that most of this information is based on either of two sets of national guidelines which help standardize treatment: the National Asthma Education and Prevention Program (NAEPP) or International Asthma Guidelines of the World Health Organization. The NAEPP guidelines, which are used most in the United States, can be found at www.guidelines.gov.

"Most doctors use one or the other," said Ostrov. "In the U.S., NAEPP is best disseminated."

Managed Care Managing Asthma Care

Managed care organizations have taken on asthma as an increasingly prevalent chronic problem and are tackling it as an organizational disease management problem, according to Ostrov.

"At GHC, we are trying to treat all asthmatics within the system," he said, "from education to treatment. GHC has a list of all asthmatic patients in a database, including when they had their last appointment, when they should be going to their next appointment, when they last filled their medication prescription, when the last time they had their breathing tested, etc."

For example, if a patient misses an appointment or is out of medication, it will show up on the records and prompt the health care provider to contact the patient.

"In the traditional model, the patient was the primary focus, not the disease. By transferring some of the responsibility to the organization we make sure nobody falls through the cracks."

Editor's Note

One of the physicians interviewed for this article, John Meurer, MD, wished to acknowledge the following entities for their contributions to the programs described in this article:

- the Medical Society of Milwaukee County's Community Collaboration for Healthcare Quality;
- the 16th Street Community Health Center's Child Health Champion Campaign;
- the State Medical Society of Wisconsin's Medical Outcomes Research Project.

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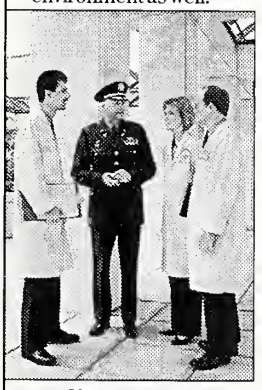

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The State Medical Society of Wisconsin Asthma Outcome Study—Initial Findings

by Bruce B. Berry, MD, and Cindy Peterson Helstad, PhD, RN

Introduction

Asthma is a chronic inflammatory disease of the airways affecting nearly 6% of the Wisconsin population.[1] Lately, asthma has been receiving more attention due to reports of sudden deaths from asthma attacks, increased incidence of children with asthma and the disabling effect of asthma on quality of life. In the United States, asthma accounts for more than 5000 deaths annually[2] and is the most common chronic disease of childhood.[3,4] People with asthma collectively have more than 100 million days of restricted activity and 470,000 hospitalizations annually.[2] Asthma hospitalization rates have been highest among blacks and children while death rates for asthma are consistently highest among blacks aged 15 to 24 years.[5] The direct medical costs for asthma care are estimated at more than $6 billion a year,[6] and the indirect costs of lost work time by parents caring for children who miss school due to asthma are estimated at $1 billion a year.[7]

Three years ago the State Medical Society of Wisconsin (SMS) formed the Asthma Outcomes Study Group. The study group consists of 10 physicians interested in improving the health of patients with asthma and includes representatives from health maintenance organizations, integrated delivery systems, small group and individual practices from across Wisconsin. The study group meets approximately five times per year, usually via telephone conference call for the meetings. The Henry A. and Irene S. Anderson Center for Medical Practice Research and Education (the Center) is the institutional home for the asthma and other outcome studies at the SMS.

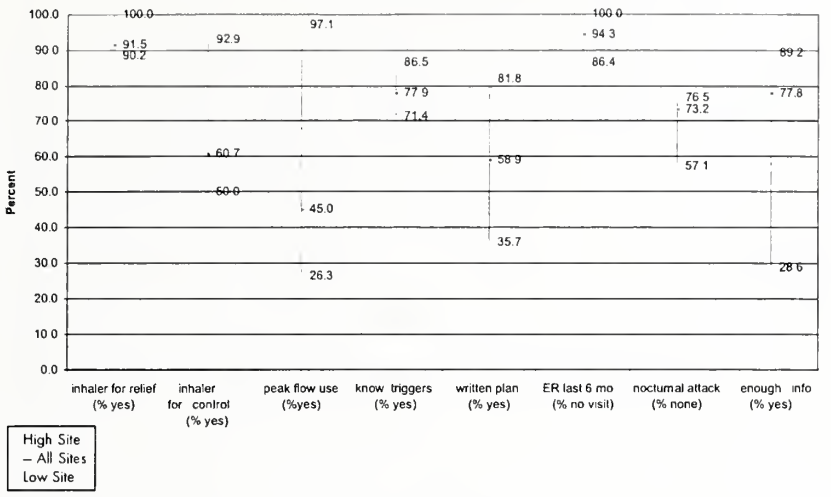
In order to accomplish their goals, the Asthma Outcomes Study Group designed a survey to collect key asthma-related process and health outcome measures. The intent was to develop a standardized set of survey questions that any provider could use to assess how he/she was doing on indicators associated with good asthma management. The data could also be aggregated across study sites and used for statewide benchmarking. The survey questions were chosen based on their likelihood to reflect the "health" of the people studied, or to reflect key processes likely to benefit persons with asthma.[8,9] The study plan was previously reported in this journal.[10] This paper reports on the study group's experiences using a standardized survey to quantify the effect of current health care practices in Wisconsin on patient-reported health status and quality of life. We report the baseline results of this pilot study and the group process used to transform the data into useful information. In addition, we will describe the lessons learned from implementing this pilot study as well as our plans for future work.

Conceptual Model

There is a gulf between the published practice guidelines for treating asthma and the actual experience of patients living with asthma. Despite the availability of practice guidelines for optimal asthma care, the burden of illness is still considerable for patients. Either we expect that the burden of illness is unchangeable or we seek to decrease that burden through health care improvements. How do we know what to improve? The study hypothesis was that *measurement* and *feedback* of key process and outcome measures could change provider and patient behavior resulting in improved outcomes for patients. The Asthma Outcomes Study Group selected six key indicators of asthma management because they had been shown to reflect best practices associated with asthma care, and resulted in better patient outcomes.[2] These included: use of steroid and anti-inflammatory inhalers, peak flow meter use, knowledge of asthma triggers, having enough information about handling severe flare-ups and having a written care plan. In addition to the six key process measures, two outcome measures that negatively reflect on existing care–emergency room visits and nocturnal attacks–were also chosen. Other survey domains included: generic health status (39 questions), personal characteristics (9 questions), comorbid health conditions (15 questions) and patient satisfaction with asthma

Doctor Berry is a practicing general internist and Director, Clinical Quality at Aurora HealthCare, Milwaukee. He chairs the Adult Asthma Study Group. Doctor Helstad is the Director of the Henry A. and Irene S. Anderson Center for Medical Practice Research and Education at the State Medical Society of Wisconsin.

Figure 1. Eight Key Indicators
All patients reporting mild asthma. (n=493)



care (8 questions).[11,12]

The study group chose the Short Form (SF)-36[13] to measure generic health status. The SF-36 contains 36 questions that are used to provide a common yardstick of health that is useful for comparing patients with chronic health problems to the general population. The 36 questions are scored into eight subscales: Physical Functioning (PF), Role Physical (RP), Bodily Pain (BP), General Health (GH), Vitality (VT), Social Functioning (SF), Role Emotional (RE), Mental Health (MH). Alternatively, the 36 questions may be scored into two component summaries: the Physical Component Summary (PCS) and the Mental Component Summary (MCS). These subscales and component summaries provide a snapshot into the burden of asthma on functioning and well-being in comparison to the US population in general. The premise is that these functional indicators will improve (or be more like the norm) if patients with asthma are well-managed.

Methods

Sample Selection

The study group solicited five study sites from its members. A sixth physician who was not a member of the study group volunteered to participate in the study. A study site could be an individual physician, a group of physicians or many physicians from a large health plan. The study sites distributed the asthma survey to a set of patients with asthma. Patients between the ages of 14 and 50 years were study eligible if they had at least one emergency room, urgent care or hospital admission or two outpatient visits with an asthma diagnosis–ICD-9 code 493.xx–within the past 24 months. To allow for maximum participation, the study sites could recruit patients at the time of a clinic visit with a physician or through a mass mailing. Sites using the mail approach sent a letter from the study site physician along with the survey and a postage paid envelope for returning the survey to the study site. The letter described the study and informed patients that participation was voluntary and would not affect their care in any way. The response rate was 52.9% at the one site that monitored patient response to the mailed survey, but this rate included patients who were between ages 13 and 65 (some of whom were ineligible for the SMS study). The two sites using an office-visit approach enrolled their patients in 1997 while the sites using a mail approach enrolled their patients in 1998. Patients' identities were known only to the study sites. Study sites transferred blinded survey data to the Center for data entry and analysis.

Reports

The Center produced site-specific and aggregate survey reports on the Sample Characteristics, 8 Key Indicators, SF-36 and Patient Satisfaction questions. The study group recommended condensing the number of reports and stratifying the data by mild and moderate/severe to look for severity-specific trends. Subsequently the results were stratified based upon patient responses to the question, "In general, would you say your asthma condition is: mild, moderate, severe?"

Results

The SMS sample was formed from patients who completed the survey and met study eligibility criteria (n=857). Four of the six study sites used the mail approach and 91.1% of the respondents completed a mailed survey. The average age of the respondents was 33.7 and 30.7% of the respondents were men. Demographic data from the various study sites are somewhat heterogeneous in regards to the proportion of patients with less than a high school education (range 4.8% to 23.3%) and household income less than $20,000 (range 0.0% to 20.7%). The study results were not adjusted for any of those factors because the number of study participants per site was too small for meaningful comparisons except at one site.

Key Process Indicators

The 8 Key Indicator report displays how a group looks compared to others stratified by self-reported asthma severity. Figure 1 displays the aggregate results for patients reporting mild asthma while Figure 2 reflects the experiences of patients reporting moderate or severe asthma. Each indicator is reported so that more

of an indicator is always better. The line over each indicator shows the best and worst sites' performance. The hash mark in between the endpoints reflects the average performance of all study sites. Each study site also receives its own results for comparison to the aggregate data. With the exception of using bronchodilator inhalers for relief, there appear to be opportunities to improve quality consistent with professional standards on several indicators at all sites.

Generic Health Status

Quality of life and functional status were measured with the SF-36 and scored, using the standard SAS scoring code, on a 0 to 100 scale where higher scores reflect best overall health and lower scores reflect worst health.[14] Figure 3 displays the aggregate results compared to published US norms.[13] Generally speaking, patients reporting mild asthma score about the same on the eight sub-scales as the US norm, while patients reporting moderate to severe asthma score worse on all SF-36 dimensions and in particular on the general health and role physical sub-scales. The aggregate physical component summary (PCS) for the SMS sample was 47.55 (SD 9.38) which compares to the national average of 50.00 (SD 10.00) for the general US population and 47.44 (SD 10.81) for the general US population with allergies. The aggregate mental component summary (MCS) average for the SMS sample was 50.04 (SD 9.45) compared to 50.00 (SD 10.00) for the general US population and 48.23 (SD 10.74) for the general US population with allergies.[14]

Patient Satisfaction

Table 1 displays the aggregate results of the Patient Satisfaction questions. For each question, the proportion of patients responding "excellent" on a five-point scale are reported. There is little

Figure 2. 8 Key Indicators
All patients reparting maderate/severe asthma. (n=364)

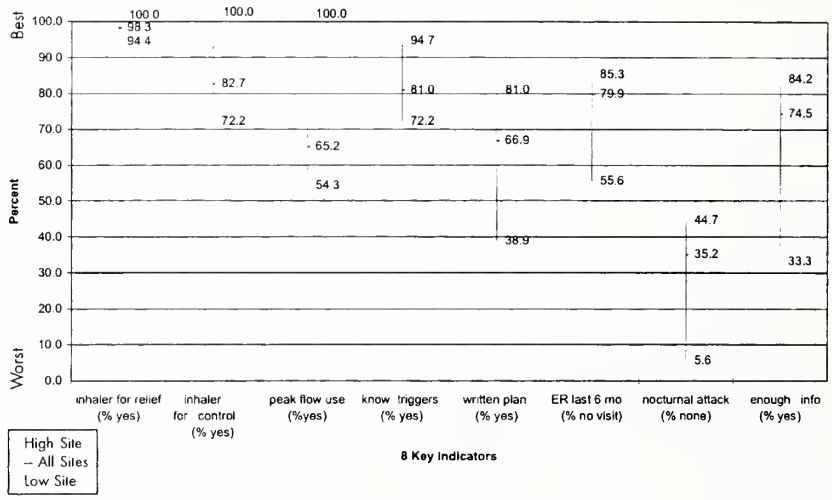
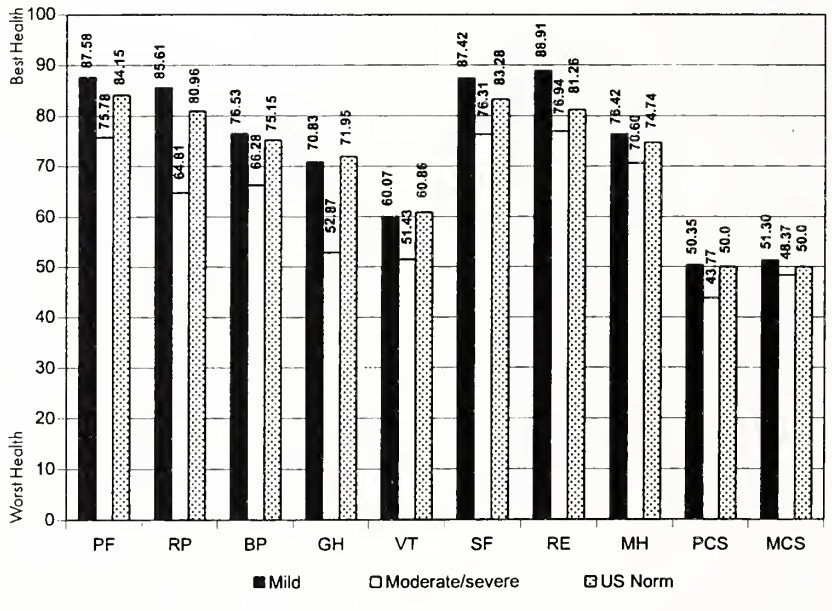


Figure 3. SF-36 Profile: Baseline Scores far SMS Adult Asthma Study Respandents (n=857) with US Narm (n=2474)



variation in satisfaction based upon reported asthma severity. The highest patient satisfaction scores were reported for physician skill despite the opportunities available to improve care based upon optimal standards.

Discussion

The study group has learned many lessons. First, outcome studies are difficult to perform in real-world settings. Using an administrative sampling method, we estimate that about 40% of the surveys were returned. Since the personal characteristics of the non-respondents are unknown, we cannot say that our sample is representative of the surveyed population. Twice as many women completed the survey even though we expected no difference in the rates of asthma between men and women. We do not know whether this is due to a response bias or if twice as many women were approached. The respondents may be more motivated to complete surveys and their experiences may

Table 1. Patient satisfaction questions; all patients* (n=857)

	% Responding "Excellent"	
	Mild Asthma Sufferers	Moderate/ Severe Asthma Sufferers
How long you usually wait to get an appointment to see your doctor.	23.2	23.0
How easy it is to reach a doctor or nurse in the office by telephone.	28.9	27.2
How easy it is to get urgent or emergency care for your asthma.	31.9	32.0
Quality of communication you have had with your doctors and nurses about your asthma.	30.9	31.5
The skill of the doctors you see for your asthma.	39.1	39.3
How much you have to pay out of your own packet for your asthma care and medicines.	22.9	18.0
Overall, how would your rate the quality of care you have received for your asthma during the PAST 3 MONTHS?	31.8	29.7
Overall, how would your rate the quality of care you have received for your asthma during the PAST 12 MONTHS?	32.7	27.8

*Respondents were asked to consider the care they received for asthma during the previous 12 months.

be different from those of the sampled populations. Nevertheless, even if the nonresponders were receiving optimal asthma care based upon the national asthma practice guidelines, there are still opportunities to improve care and presumably functional health for the patient responders.

A second lesson is that comparisons from site to site are difficult to perform when the sample sizes are small. When dealing with individual practices, there simply won't be a large enough sample to stratify the outcome and process measures by many of the other variables. This limits the analysis to only a few variables; at this time we are reporting the results in the aggregate and by study site adjusted for self-reported severity. While the severity rating is subjective, there seems to be an association between patients' self-assessment of their asthma severity and ER visits and nocturnal awakenings. The worse ER rates and nocturnal symptom rates for self-reported moderate or severe asthmatics do not appear to be associated with poorer performance on the other key process indicators. The other indicators support the fact that moderate to severe asthmatics have as many or more resources at their disposal as evidenced by a greater rate of control inhalers, peak flow monitoring, knowledge of asthma triggers, use of written action plans, and availability of inhalers for relief.

The relationship between self-reported asthma severity and poor asthma control deserves further attention. The *Asthma in America* report compares patients' self-classification of symptom severity to how they score on the NIH severity index.[15] The proportion of patients rating their symptom severity the same as the NIH Index is 21.9% for severe persistent; 34.7% for moderate persistent; 61.2% for mild persistent and 44.5% for mild intermittent. With the exception of the mild persistent category, patients appear to rate their symptom severity one category less than the NIH Index rating. In order to maximize the potential for improving the quality of care for asthma patients, it will be important to better understand the relationships between patients' self-reports and their true burden of illness. To do this we will need to look at objective measures of severity such as pulmonary function tests or personal best peak flow measures compared to subjective global and index measures of asthma severity. This was beyond the scope of the current study.

Conclusion

These findings serve only as an interim report on the progress to date of the SMS Asthma Outcomes Study Group. We have completed one cycle of measurement for the participating study sites. It seems from the initial results that many patients are not fully benefiting from present scientific knowledge pertaining to the care of patients with asthma. The next step is to feed the analysis back to the study sites in the form of the "key indicator panels" and provide the clinicians with resources to make a change in patients' lives. The study group is preparing a "toolkit" of resources for the clinicians and their organizations. This toolkit would include best practices for improving key indicators, change concepts for implementing new processes, and educational materials for providers and patients.[16] The toolkit could serve as a resource for clinicians hoping to affect a change in their own behavior as well as their patients' behaviors. After this intervention, we will repeat our patient survey administration and see if we have made a positive impact in those persons' lives as reflected by an improvement in the key indicators and health outcomes.

From a pure research standpoint this project is very difficult to continue, but within the context of trying to create a methodology for measuring asthma outcomes in the outpatient setting over time it is

possible. The study group remains committed to trying to serve the needs of people with asthma and the clinicians providing their care. With that commitment comes several more years of work and a continued vision of providing information to clinicians and patients to improve the health of those persons living with asthma.

We are interested in learning more about the experiences of Wisconsin patients with asthma and are actively seeking funding to move out of the pilot study phase. If you have any interest in participating in a future asthma outcomes study, contact Asthma Study Coordinator Mary Bowers at 1-800-362-9080 ext. 274.

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Asthma Study Plan continued from page 40

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The Medical Outcomes Research Project Pediatric Asthma Study

By Cindy Peterson Helstad, PhD, RN, and John R. Meurer, MD, MM

Background

An opportunity exists to improve health outcomes for pediatric patients with asthma and decrease the burden of illness on patients and their families. In this article, we describe the State Medical Society of Wisconsin (SMS) initiative to address this call to action. Asthma is the most common chronic disease of childhood affecting 4.8 million children in the United States.[1-3] Among children under age 5, there has been a 160% increase in the prevalence of asthma since 1980.[4] Asthma hospitalization rates have been highest among blacks and children.[5] More than 10 million school days are missed per year due to asthma, and the costs of lost work time by parents caring for children who miss school are estimated between $900 million to $1 billion a year.[6,7]

In 1998, a large survey of public, patient and professional knowledge, attitudes and behavior toward asthma in the United States was conducted with a national sample of 2,509 adults or parents of children with asthma.[8] The findings of this survey revealed that asthma management in America is falling far short of the guidelines established by the National Heart, Lung and Blood Institute (NHLBI).

Two years ago the SMS formed the Pediatric Asthma Outcomes Study Group. The group consists of eight medical groups interested in improving the health of pediatric patients with asthma. This article presents the Medical Outcomes Research Project Pediatric Asthma Study Plan. Study coordination occurs through the Henry A. and Irene S. Anderson Center for Medical Practice Research and Education (The Center) at the SMS.

Doctor Helstad is the Director of the Henry A. and Irene S. Anderson Center for Medical Practice Research and Education at the State Medical Society of Wisconsin. Doctor Meurer is Assistant Professor of Pediatrics and Health Policy in the Center for the Advancement of Urban Children at the Medical College of Wisconsin and Children's Hospital of Wisconsin. He is Chair of the Medical Outcomes Research Project Pediatric Asthma Study.

Pediatric Asthma Study Plan

Study Hypothesis

We can reduce variation in practice patterns and improve processes of care for pediatric patients with asthma through a systems approach to quality improvement. This involves:

1) Standardized measurement of process indicators, health-related outcomes and patient satisfaction;
2) Data aggregation and analysis;
3) Feedback of key process indicators and health outcome measures;
4) Data comparisons;
5) Best practice identification;
6) Educational programs for clinicians, their staffs, parents and children.

Study Design

This is a prospective survey study. Parents of children with asthma will complete a paper and pencil survey about key process and outcome measures and their satisfaction with their child's asthma care. The survey questions will be analyzed and the results will be shared with participating physicians. The physicians will choose interventions to improve the key process indicators. Interventions may include implementing best practices identified in the study group based upon the survey results, Continuing Medical Education courses on the 1997 NHLBI Guidelines for the Diagnosis and Management of Asthma, and disseminating patient education materials. Participants will be resurveyed 6 months after the intervention to evaluate changes in their key process indicators and health outcomes.

Patient Identification

Retrospective audit of claims data, appointment schedules or medical records.

Eligibility

- Established pediatric patients age 2 to 14 years with subsets of age 2 to 4, 5 to 10 and 11 to14 and
- One outpatient visit for asthma (ICD-9 code 493.xx) and one outpatient visit for acute bronchitis (ICD-9 code 466.0), or recurrent bronchitis (ICD-9 code 491.9), or (ICD-9 code 786.2), or wheezing (ICD code 786.09) or bronchospasm (ICD-9 code 519.1) within 24 months, or

- Two outpatient visits for asthma (ICD-9 code 493.xx) within 24 months, or
- Three outpatient visits for acute bronchitis (ICD-9 code 466.0), recurrent bronchitis (ICD-9 code 491.9), cough (ICD-9 code 786.2), wheezing (ICD code 786.09) or bronchospasm (ICD-9 code 519.1) within 24 months.

Measurement Tools

The following key process indicators were chosen based upon the National Committee for Quality Assurance (NCQA) Asthma Measurement Advisory Panel recommendations,[13] and the 1997 Guidelines for the Diagnosis and Management of Asthma[14] using a modified delphi method.

1. Whether patient received written instructions about asthma self-care.
2. Days lost from school/work due to asthma.
3. Use of inhaled steroids.
4. Emergency room or urgent care visits for flare-ups in the past 6 months.
5. Frequency of nocturnal attacks.
6. Whether patient received enough information from physician on managing severe flare-up.
7. Knowledge of triggers.
8. Interference with normal social activities.
9. Patient-reported access to providers.
10. Global satisfaction with asthma care processes.
11. CHQ scores compared to national norms.
12. Family function/dysfunction.

Reporting and Analysis

The Center will be the data repository for the study. Data will be obtained, maintained and released according to the SMS Data Confidentiality and Security Policy (available upon request). Data entry may occur at the study site or the Center. Study sites performing their own data entry will transfer the data to the Center on diskette in accordance with the data dictionary specifications. The Center will perform data entry for study sites transferring completed questionnaires to the Center.

Measurement Tools

Domain	Form
Demographics Comorbidity Health Status (generic)	Child Health Questionnaire (CHQ-PF28)[9]
Health Status (asthma-specific)	Child Asthma Short Form[10]
Key Process Indicators	Pediatric Asthma Process Questions[11]
Patient Satisfaction	Asthma Satisfaction Survey[12]

Patient Level Data

Site-specific patient data will be grouped and returned to the study sites via diskette. Each study patient will have a unique identification number that will be used to maintain patient anonymity at the SMS. Only the study sites will be able to map the patient identification number to patient identifiers. The SMS does not obtain identifying patient information.

Clinic Reports

The point of contact between the SMS staff and the study sites is referred to as the "clinic" even though all clinicians at a study site are not required to participate. The SMS staff will provide paper reports to the study sites through the clinic liaison. The chief objective of clinic level reporting is to provide benchmarking information to gauge and improve performance. Clinic-specific and aggregate results will be reported separately for patients with mild asthma and for patients with moderate/severe asthma at baseline. *The SMS Asthma Outcome Study—Initial Findings* (p. 34) displays several examples of how the aggregate results are reported. Change scores for the key process and health outcomes measures will be reported when the survey administration is repeated after the intervention.

We plan to conduct this study this fall. If you are interested in participating in the pediatric asthma pilot study, please contact Mary Bowers, the Pediatric Asthma Study Coordinator at 1-800-362-9080 ext. 274.

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Prevalence of Penicillin Resistant and Multi-Drug Resistant Streptococcus Pneumoniae at a Children's Hospital

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ABSTRACT

Streptococcus pneumoniae isolated at Children's Hospital of Wisconsin during the winter of 1994 to 1995 and the winter of 1996 to 1997 were tested for susceptibility to penicillin, cephalosporins and other potentially therapeutically useful antimicrobial agents to determine the prevalence of penicillin and multi-drug resistant isolates. During those years, the prevalence of *S. pneumomiae* not susceptible to penicillin was 27% and 28%, respectively, with 14% and 18%, respectively, of the respiratory isolates being high-level penicillin resistant. Despite the stable numbers of penicillin resistant isolates, there was evidence of significant increase in the resistance of these isolates to other antimicrobial agents. Respiratory isolates not susceptible to cefotaxime increased (p=.01; Fisher exact test) from 3% in 1995 to 20% in 1997. There was also a significant increase in the isolates not susceptible to erythromycin (p=.09; Fisher exact test) and trimethoprim/sulfamethoxazole (p<.01; Fisher exact test). This increase in resistance to multiple antimicrobial agents has significant implications for antibiotic therapy of children with infections likely to be due to *Streptococcus pneumoniae*.

INTRODUCTION

Streptococcus pneumoniae causes a variety of childhood infections including otitis media, pneumonia, bacteremia and meningitis. Prior to the early 1990's, most strains of *S. pneumoniae* in the United States were susceptible to penicillin despite reports of penicillin resistance in other parts of the world. Resistant strains of *Streptococcus pneumoniae* were first reported in large numbers from South Africa in 1977. These organisms had high-level (MIC, ≥ 2.0, µg/ml) resistance to penicillin and other antibiotics. In the United States, penicillin-resistant pneumococci were first noted in 1974.[2] In 1982, The Centers for Disease Control reported 8% of the strains of *S. pneumoniae* were not fully susceptible to penicillin. Of these, nearly all demonstrated low-level (intermediate) penicillin resistance (MIC = 0.1 to 1.0 µg/ml).[18] At that time, high-level penicillin resistance (MIC > 2.0 ug/ml) was extremely uncommon. However increased penicillin resistance, in terms of both prevalence and degree, has been reported more frequently since then. In a nationwide surveillance study performed from 1991 to 1992, Thornsberry[19] reported 15.2% intermediate and 2.6% high-level penicillin resistance. In another nationwide surveillance study performed in 1994 to 1995, Doern[3] reported 14.1% intermediate and 9.5% high-level penicillin resistance among *S. pneumoniae* strains isolated from blood, cerebrospinal fluid (CSF) and respiratory tract. The percentage of penicillin resistance varied from 2 to 53 among different locations.[3] Penicillin resistant *S. pneumoniae* has also been demonstrated to show increasing rates of resistance to clindamycin, chloramphenicol, erythromycin, trimethoprim/sulfamethoxazole and tetracycline.[18,19]

The highest rates of penicillin resistance have been reported in isolates from pediatric patients, most notably in patients frequently treated for otitis media and sinusitis.[3,8,9] Prior to these reports of penicillin resistance, we performed antimicrobial susceptibility testing on *Streptococms pneumoniae* isolated from blood and cerebrospinal fluid (CSF) only. In 1994 (January to December), 85% of the blood and CSF isolates were penicillin susceptible. Because of our concern that analysis of only blood and CSF isolates would seriously underestimate the presence of penicillin-resistant *S. pneumoniae* in the community, we monitored the prevalence of antimicrobial resistance in pneumococcal isolates from the

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Table 1. *S. pneumoniae* Susceptibility: Blood and CSF isolates*

Antibiotic	Percent Susceptible MIC <0.1 µg/ml		Percent Intermediate MIC= 0.1 to 1.0 µg/ml		Percent Resistant MIC 2.0 µg/ml	
	1995	1997	1995	1997	1995	1997
Penicillin	82	79	9	14	9	7
Cefotaxime	97	90	0	7	3	3

* Number tested 1995= 35; 1997=29.

respiratory tract of pediatric outpatients at our location over two winters.

MATERIALS AND METHODS

Bacterial strains. Blood, CSF, sputum, nasopharyngeal swabs and tympanocentesis fluid were collected using standard procedures[10] from November 1994 to April 1995, and November 1996 to April 1997. Identification and susceptibility testing were performed on all *S. pneumoniae* isolated from these sources by the clinical microbiology laboratory at Children's Hospital of Wisconsin in Milwaukee using standard procedures.[6] This hospital serves children from throughout Wisconsin, but predominantly from the southeastern region of the state, as well as from northern Illinois, and the upper peninsula of Michigan.

Susceptibility Testing. All *S. pneumoniae* isolated from blood & CSF during the winters of 1994 to 1995 and 1996 to 1997 were tested for susceptibility to penicillin and cefotaxime. All *S. pneumoniae* isolated from respiratory specimens (sputum, nasopharynx, and tympanocentesis fluid) were tested for susceptibility to erythromycin, chloramphenicol, trimethoprim/sulfamethoxazole (TMP/SMX), tetracycline and vancomycin, in addition to penicillin and cefotaxime. Penicillin and cefotaxime susceptibility testing was performed using E-test (AB Biodisk North America Inc., Piscataway, NJ) according to manufacturer's recommendations on Mueller Hinton with blood and incubated at 35°C in 5% CO_2. Susceptibility testing to erythromycin, chloramphenicol, trimethoprim/sulfamethoxazole, tetracycline and vancomycin was performed using Kilby-Bauer disk diffusion according to NCCLS Recommendations.[11-13] Results were reported as susceptible, intermediate or resistant based upon NCCLS recommended breakpoints.[11-13] In this report, antibiotics reported as "not susceptible" include both intermediate and resistant interpretations. This somewhat confusing nomenclature is an important clinical distinction for patient care.

Statistical analysis. The statistical significance of differences between groups was measured using the Fisher exact test.

RESULTS

Between the winter of 1994/1995 and 1996/1997, the overall prevalence of *S. pneumoniae* not susceptible to penicillin was 27% and 28%, respectively, with 14% and 18%, respectively, of the respiratory isolates being high level penicillin resistant.

The prevalence of *S. pneumoniae* isolated from blood and CSF which were not susceptible to penicillin was 18% and 21%, respectively. Over that period of time, there was no significant increase in penicillin "non susceptibility" (Table 1). The prevalence of *S. pneumoniae* not susceptible to cefotaxime was 3% and 10%, respectively. There was a slight increase in the percent of isolates with intermediate cefotaxime resistance, however this was not statistically significant ($p=.21$). There was no significant increase in cefotaxime resistance.

For respiratory isolates (Table 2), the rate of penicillin non-susceptibility (34% and 32%) also did not change from 1994/1995 to 1996/1997. There was, however, a significant increase in the number of isolates not susceptible to cefotaxime over this same time period ($p=.01$). This was most evident as an increase in the number of cefotaxime intermediate respiratory isolates (Table 2). The number of isolates resistant to erythromycin increased ($p=.09$) as did the number of isolates resistant to trimethoprim/sulfamethoxazole (TMP/SMX) ($p<.01$) (Table 2).

Isolates susceptible to penicillin were highly likely to be susceptible to all other agents tested except TMP/SMX. As the resistance to penicillin increased, so too did the resistance to the other antimicrobial agents tested (Table 3). While only 25% of the penicillin intermediate isolates were not susceptible to

Table 2. *S. pneumoniae* Susceptibility: Respiratory isolates*

Antibiotic	Percent Susceptible MIC <0.1 µg/ml		Percent Intermediate MIC= 0.1 to 1.0 µg/ml		Percent Resistant MIC 2.0 µg/ml	
	1995	1997	1995	1997	1995	1997
Penicillin	66	68	20	14	14	18
Cefotaxime	97	80	0	12	3	8
Chloramphenicol	96	95	0	0	4	5
Erythromcin	90	77	0	0	10	23
Tetracycline	92	91	0	0	8	9
TMP/SMX	82	55	0	0	18	45

* Number tested 1995= 50; 1997=66.

cefotaxime, fully 100% of the penicillin resistant isolates were not susceptible to cefotaxime. Penicillin resistant isolates were also highly likely to be resistant to erythromycin and TMP/SMX, but many (82%) retained susceptibility to clindamycin and chloramphenicol. TMP/SMX resistance was relatively common even in penicillin susceptible isolates. All strains in this study maintained susceptibility to vancomycin.

DISCUSSION

This study corroborates the findings of other studies showing a high prevalence of penicillin and cephalosporin resistant *S. pneumoniae*.[3,8,19] These studies employed isolates from blood and CSF as well as respiratory tract isolates. However, they have also documented dramatic geographic differences in the presence of resistant *S. pneumoniae*.[3,19] In the study by Doern, these differences varied from <3% to >50% penicillin resistant.[3] For this reason, it is important to know the prevalence in a particular geographic location. The presence of approximately 20% high-level penicillin resistant *S. pneumoniae* in the respiratory secretions of ambulatory patients at Children's Hospital of Wisconsin suggests that this organism has a strong presence in southeastern Wisconsin and must be considered in the treatment of respiratory infections in children and adults alike.

There has been a significant increase in isolates not susceptible to cefotaxime which was not evident by testing only blood and CSF isolates. This documents the increasing prevalence of multi-drug resistant *S. pneumoniae* in our community. This increase in resistance has implications for antibiotic therapy of children with infections due to *S. pneumoniae*. Isolates which show intermediate susceptibility to penicillin are usually not susceptible to loracarbef, cefaclor, ceftibuten and cefixime, while cefuroxime axetil and cefpodoxime proxetil may demonstrate some activity. All of these agents lack activity against high-level penicillin resistant isolates. Of the beta-lactams, only the parenteral agents, cefotaxime and ceftriaxone are active against penicillin intermediate strains and demonstrate some activity against penicillin resistant strains.[3] In our study, these agents were active against only 75% of the penicillin intermediate isolates and had no activity against any of the penicillin resistant isolates (Table 3). While these parenteral beta-lactam agents may continue to be useful in treating selected infections due to penicillin intermediate *Streptococcus pneumoniae*, there is enough concern about potential resistance in serious infections like meningitis, that it is recommended that vancomycin be employed in therapy of these infections likely due to *S. pneumoniae* until penicillin and cephalosporin susceptibility can be determined.[1]

Isolates which are not susceptible to penicillin are increasingly more likely to be resistant to non-beta lactam antimicrobial agents as well, especially trimethoprim sulfamethoxazole and erythromycin. This resistance is directly proportional to the degree of penicillin resistance (Table 3). Eighty-two percent of penicillin resistant isolates are resistant to erythromycin and 100% of penicillin resistant isolates are resistant to TMP/SMX. Erythromycin resistance can predict resistance to azithromycin and clarithromycin. Clindamycin and chloramphenicol are most likely to maintain activity against penicillin resistant isolates. However, chloramphenicol for oral administration is no longer available in the United States. All isolates in this study maintained

Table 3. Resistance of Respiratory *S. pneumoniae* isolates to selected antimicrobial agents based on resistance to penicillin.*

	Percent Resistant*		
	Penicillin MIC (µg/ml)		
Antimicrobial	<0.1 (S)	0.1 to 1.0 (I)	>2.0 (R)
Cefotaxime	0+	0% R (25% I)	64% R (36% I)
Chloramphenicol	0	12	18
Clindamycin	4	12	18
Erythromcin	7	37	82
Tetracycline	0	25	36
TMP/SMX	30	62	100

*Based on data from 66 isolates collected in 1997.
+Percent resistant (of the total number of isolates at the given penicillin MIC) to each antimicrobial agent listed.

susceptibility to vancomycin and for serious infections this intravenous agent remains useful.

Risk factors for development of infections due to penicillin-resistant *S. pneumoniae* have been demonstrated to include previous use of beta-lactam antibiotics (as prophylaxis or treatment) or attendance at day-care centers where antimicrobial use is common.[19] This suggests that treatment with agents other than beta-lactams could decrease the prevalence of penicillin resistant isolates. However, there are some data to suggest that this would merely select for isolates resistant to the new agent.[7]

To best decrease the emergence of penicillin resistant *S. pneumoniae,* inappropriate antimicrobial usage needs to be limited. Shorter courses of antimicrobial therapy, non-beta-lactam prophylactic regimens and intermittent and/or rotating prophylactic regimens have all been suggested as methods to decrease the selective pressure in day care centers.[19] Principles of judicious use of antimicrobial agents have been published,[5] with recommendations for treatment of otitis media,[4] pharyngitis,[17] acute sinusitis,[14] cough illness/ bronchitis,[15] and the common cold.[16] Our data demonstrates that time is rapidly running out to make these changes.

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MAC Prophylaxis in the Era of Polypharmacy

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ABSTRACT

In the advanced stages of AIDS, patients are increasingly susceptible to disseminated *Mycobacterium avium-intracellulare (MAC)* infection, causing significant morbidity and mortality. It has been shown that prophylaxis against this infection is effective in reducing the incidence as well as the symptoms of MAC. Although chemoprophylaxis against MAC is a standard recommendation, it is not always carried out due to a variety of reasons. Several agents are now approved for this purpose, adding to the complexity of the decision to start the prophylaxis. This article reviews the need for prophylaxis against MAC, and considers the different agents available, with the aim of helping readers come to an informed decision about starting MAC prophylaxis in their patients. This issue will be of rising importance with the effective prevention of other opportunistic infections in patients with advancing immune deficiency.

With the tremendous strides against HIV in the last two years, there has been a dramatic decrease in clinical endstage AIDS patients, as well as in the morbidity among the HIV-infected population with Helper T lymphocytes (CD4) count under 200. As a result, there may develop a false sense of security, which may prove disastrous if *Mycobacterium avium-intracellulare* Complex (MAC) infects an otherwise opportunistic infection-free patient. On the contrary, there should be awareness of an increasing incidence of MAC infections due to prevention of other opportunistic infections and longer survival of patients.[1]

It has been proven time and again that treatment of disseminated MAC in AIDS improves survival significantly.[2-4] However, it has also been shown that therapy for MAC is suboptimal, lengthy, and poorly tolerated due to side effects and drug interactions. Rifabutin and clarithromycin were among the earliest drugs shown to have good activity against these organisms,[5-7] but monotherapy quickly led to resistance and relapse. Combinations including clarithromycin and ethambutol +/- rifabutin then were advocated as standard treatment. Later agents such as azithromycin, ciprofloxacin, sparfloxacin, clofazimine and amikacin were also included in various combinations. As expected, multidrug regimens were associated with problems of drug toxicity, intolerance, interactions and non-compliance. This, along with the addition of new drugs to the HIV armamentarium, reinforced the need for a simplified prophylactic regimen against MAC.

As MAC is ubiquitous, prevention of infection cannot be achieved with environmental control measures. Prophylaxis therefore depends on chemotherapeutic agents directed towards the population at highest risk. Studies have shown that the incidence of disseminated MAC rises with falling CD4 counts, starting at about 100/ul, but mainly occurring at counts below 50/ul.[8,9] Eventually 15% to 25% of all patients with AIDS develop this infection, although this proportion may be rising now due to the longer survival of patients with low CD4 counts. Untreated, disseminated MAC infection causes significant morbidity and reduced survival. Symptoms include fever, anorexia, abdominal pain, weight loss, night sweats, anemia and diarrhea. Patients meeting the following criteria should be chosen for prophylaxis:

a) CD4 count <50, or
b) CD4 count <100 with history of prior opportunistic infections.
c) Absence of current infection with MAC (i.e. a single negative blood culture for acid-fast bacilli)
d) Absence of current TB infection.

The prophylactic drug should ideally be inexpensive, efficacious, convenient, and low in adverse effects

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and drug interaction problems. Several agents are now available, and we will discuss whether or not they meet these requirements.

CHOICE OF CHEMOPROPHYLAXIS

Rifabutin: The earliest studies were with rifabutin, a semisynthetic rifamycin, used at a dose of 300 mg a day. Both studies were published simultaneously in 1993.[10] They involved 1146 patients with CD4 counts <200 followed over six months, and showed significant reduction in the incidence of MAC bacteremia, from 17% to 18% in placebo to 8% to 9% in those given rifabutin. The studies failed to show a definite survival benefit, however.

Several concerns exist about use of rifabutin. First, there is the issue of development of mutant resistant strains. However, despite the 8.5% incidence of MAC bacteremia among rifabutin recipients in the above trials, there was no evidence that this was due to acquired resistance. The rifabutin minimum inhibitory concentrations (MICs) for isolates from the treatment and placebo groups did not differ significantly. This has been attributed to low achievable serum concentration of rifabutin at the doses given, although the full explanation has not yet been proved.[11]

Adverse effects are not very common, but rash, leukopenia, thrombocytopenia, uveitis, headaches, myalgias and hepatotoxicity have been reported. Rifabutin is an inducer of cytochrome p-450 enzyme, leading to several clinically important drug interactions. Most notably, zidovudine and protease inhibitor concentrations may be reduced in patients taking rifabutin. There was also a higher incidence of uveitis in patients given clarithromycin along with rifabutin at high doses. This was due to the inhibition of cytochrome p-450 by clarithromycin, causing almost doubling of rifabutin levels.

Another concern was the possibility of inducing rifampin-resistant strains of TB, as cross-resistance exists between rifabutin and rifampin. Active TB therefore has to be excluded before initiating rifabutin for MAC prophylaxis.

Finally, there is controversy regarding proof of survival benefit with rifabutin prophylaxis. The original studies reported by Nightingale et al showed no significant difference in overall survival between the placebo and rifabutin groups. However, a retrospective analysis showed that survival was 2.1 years compared with 1.3 years for those on placebo.[12] This may have been due to lack of adequate power in the initial studies to detect such a difference.

Clarithromycin: Several trials in the early 1990s showed the high efficacy of clarithromycin in *in vitro* testing as well as in treating MAC bacteremia in AIDS. Majority of patients became culture negative by 8 weeks of therapy and about 70% were clinically improved.[3] The optimal dose was determined to be 500 mg bid, and this was approved in 1994 for treatment of MAC as part of combination treatment.

A large trial of MAC prophylaxis using clarithromycin was undertaken at multiple centers in the United States and Europe. In this placebo-controlled, double-blinded study, 667 patients were analyzed.[13] All had CD4 counts of 100 or less. MAC developed in 19 of 333 patients in the clarithromycin group (6%), and in 53 of the 334 patients in placebo group (16%). This was a 69% risk reduction. There were 107 deaths in the clarithromycin group (32%) and 137 in the placebo group (41%). Thus prophylaxis with this drug led to a significant (26%) reduction in mortality.

This study therefore showed a survival advantage as well as the effective prevention of MAC bacteremia. On this basis, clarithromycin was the second prophylactic agent to be approved for MAC. Same concern was raised about the finding that 11 of the 19 MAC isolates in the clarithromycin group were resistant to the drug. This may be a problem for treatment of such patients, but fortunately does not mean a risk of community drug resistant isolates as seen with TB, because MAC is not spread from person to person. These patients had the lowest CD4 counts at baseline and therefore probably had MAC that was treated with monotherapy. Also, it was obviously not enough of a problem to offset the survival benefit.

Side effects with clarithromycin are mainly gastrointestinal, as expected from a macrolide. They are nausea, taste perversion, and rectal disorders, and are more often seen when dosage exceeds 1 gm a day. Recent studies indicate equal efficacy for prophylaxis with clarithromycin doses of 500 mg a day.[14]

In view of concerns about development of resistance, studies have also been done using combination prophylaxis, clarithromycin and ethambutol, or clarithromycin and rifabutin. The latter gained attention when several cases of uveitis emerged due to the interactions involving the cytochrome p-450 system, when rifabutin was used in doses of 450 mg or above.[15] Also, the combination did not provide a definite advantage over

clarithromycin alone. Clarithromycin is therefore shown to be a well tolerated and effective chemoprophylactic agent for MAC.

Azithromycin: This macrolide also has proven activity against MAC. Because it gets highly concentrated in phagocytes and tissues, it was considered appropriate to use in a weekly dose for MAC prophylaxis. In a study published in August 1996, Havlir et al randomly assigned 693 HIV infected patients with less than 100 CD4 cells to receive rifabutin 300mg, azithromycin 1200mg weekly, or both.[16] The incidence of disseminated MAC at one year was 15.3% in the rifabutin group, 7.6% in the azithromycin group, and 2.8% in the combined group. The risk of infection was therefore best reduced with both drugs, and was lower for azithromycin alone than for rifabutin alone. Eleven percent of the isolates from those on azithromycin alone were resistant to both azithromycin and clarithromycin. There was a higher incidence of adverse effects, mostly gastrointestinal, in patients given azithromycin, especially when combined with rifabutin. The latter also raised the cost of prophylaxis as well as the risk of drug interactions. There was no distinct survival benefit between the various arms of this trial. Weekly azithromycin alone, therefore, is now accepted as an alternate prophylactic regimen for disseminated MAC.

Others: Clofazimine and dapsone have been studied and found ineffective in MAC prophylaxis at the doses used.

CONCLUSIONS

With the increased survival of HIV-infected population, it is important to be more vigilant for MAC, and to use prophylaxis where indicated. The decision of when and what to use has to be carefully made considering the iatrogenic effect on the patient's quality of life caused by an adverse reaction or drug interaction. The protease inhibitors are increasingly being used, and are especially notorious for interactions involving rifabutin, among other drugs. The three approved drugs are effective in reducing the incidence of MAC infection, with the macrolides showing a more potent reduction than rifabutin. One has to consider the added antibacterial advantage of the macrolides, at the same time knowing the risk of resistant isolates. Of the macrolides, clarithromycin has been demonstrated to provide a survival benefit. Finally, there is now no doubt that an ounce of MAC prevention is better than a pound of attempted curative therapy.

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Barriers to the Physician Decision to Offer Hospice as an Option for Terminal Care

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ABSTRACT

Hospice is one care alternative available to the terminally ill, but if physicians do not offer this option, it is not likely to be considered by a patient who is making end-of-life decisions. A 15-item questionnaire to determine which barriers hinder or delay a physician's decision to discuss hospice with patients was sent to 147 physicians in one area of western Wisconsin. The study population included primary care physicians (family practitioners, internists and pediatricians) and specialists (cardiologists, gastroenterologists, nephrologists, neurologists, oncologists, pulmonologists, radiation oncologists, and urologists). The barriers receiving the most citations were: "patient or family hasn't accepted the terminal diagnosis," "patient or family desires to continue life-prolonging treatment," "patient has no family or friends to help hospice provide care," and "difficult to prognosticate amount of time patient has to live." Personal interviews with 13 of the participating physicians revealed additional barriers: "concern over loss of involvement with patient," "admitting patient to hospice causes some inconvenience," "deficit in physician knowledge of local hospice program," "introduction of hospice late in course of illness," and "use of home health services instead of hospice." Knowledge of these barriers may lead to an interdisciplinary approach to ensure that patients receive information of all alternatives available for terminal care.

INTRODUCTION

The patient decision of where to receive terminal care should be the result of a collaborative, fully informed decision making process which includes the patient, family and all concerned health care professionals. Hospice care, while not appropriate for every dying patient, offers quality end-of-life care that results in high levels of patient and family satisfaction[1] and cost savings, especially in the last month of life.[2] Despite these findings, hospice programs care for only a small percentage (12%) of the total number of terminally ill patients in this country.[3]

Questions have been raised as to why more patients have not chosen to use hospice for end-of-life care.[4] While anyone, including patients, family members, physicians, or nurses can refer a person to hospice, physicians have been found to exert the greatest influence on this decision in their roles as gatekeeper and referral source.[5] When physicians do discuss hospice care with patients, particularly if discussed at the critical period soon after the diagnosis of a terminal illness, the vast majority of patients do consider using hospice.[6] Research shows that physicians do not always offer the option of hospice when discussing alternatives for terminal care, or they do so quite late in the disease course, when the benefits of hospice care to patients and family are reduced.[7]

All health care professionals involved in working with terminally ill patients are influenced by various psycho-socio-cultural factors that affect how they enter a decision-making relationship with patients.[4] They can be subject to personal conflict or bias, which incline them toward less than full disclosure of all available options to patients. Without full information, the patient's decision-making process may be compromised. Physicians, in particular, are in a crucial position as critically ill and elderly patients often bestow upon them a powerful influence over health care decisions. A dialogue among health care professionals with a diversity of professional and personal backgrounds can help offset individual biases, personal preferences, and knowledge limitations, so that the base of information for decision making is broadened.[8]

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Table 1. Demagraphic characteristics af respandents

	N = 97	
Demographic characteristic	n	%
Area of Practice:		
Primary care practice	71	(73%)
Specialist practice	26	(27%)
Years in Practice:		
0-5 years	53	(55%)
16-30 years	37	(38%)
31-45 years	7	(7%)
Locations of Practice:		
Urban practice (city pap.>10,000)	83	(86%)
Rural practice (cammunity pap.<3,000)	14	(14%)
Hospice, Palliative Care Education:*		
Continuing education	74	(76%)
No continuing education	23	(24%)

*Nate: Cantinuing educatian in haspice ar palliative care designated as reading jaurnal articles ar attending seminars an this subject within the past twa years.

Table 2. Physicians grauped by demagraphic characteristic and carresponding average number af times haspice aptian affered ta patients aver past twa years

Demographic characteristic N=97	**Average No. times hospice offered*** Range	Mean (SD)	Median
Area of practice			
Primary care practice	0 - 33	8 (7)	5
Specialist Practice	0 - 200	24 (47)	9
Years in practice			
0 - 15 years	0 - 200	12 (28)	5
16 - 30 years	0 - 140	13 (23)	8
31 - 45 years	2 - 30	8 (6)	4
Location of Practice			
Urban practice	0 - 200	13 (27)	6
Rural practice	1 - 20	8 (8)	5
Hospice, palliative care education			
Cantinuing Educatian	0 - 200	14 (29)	6
Na Cantinuing Educatian	0 - 25	7 (6)	4

*Median values determined ta be the best gauge af average due ta presence af several respandents wha affered haspice ta patients many mare times than the average physician in the graup.

METHOD

The purpose of this study was to ask physicians what factors or situations caused them to stop or delay the initiation of a conversation with patients about the hospice option. The study population was the group of 147 physicians who fit the criteria of practicing within the geographic boundaries of two hospices located in western Wisconsin and having a practice within which it was likely to care for terminally ill patients. The Wisconsin counties comprising the hospice service area included all of Eau Claire and Chippewa Counties and portions of Barron, Rusk, Taylor, Clark, Jackson, Trempealeau, Buffalo, Pepin, and Dunn counties. Both hospices were affiliated with home care agencies and offered hospice care either in private homes or in contracted nursing homes. The researcher consulted with hospice personnel and several physician consultants to determine the practice areas that would fit the criteria. The included primary care practice areas were family practice, internal medicine, and pediatrics. The included specialty areas were cardiology, gastroenterology, neurology, nephrology, oncology, pulmonology, radiation oncology, and urology.

There were two parts to the study. For part one, quantitative data were derived from a self-report questionnaire mailed to physicians' offices in the fall of 1997. The questionnaire described 15 situations or factors that were potential barriers to the physician decision to offer the hospice option to patients. The respondents were asked to indicate 'yes' or 'no' as to whether each situation had stopped or delayed their decision to initiate a discussion about hospice as a care option within the past two years. The questionnaires were returned anonymously, but demographic information yielded comparisons between groups of physicians based on certain broad characteristics, as noted in Table 1.

Content validity for the measuring tool began with a thorough review of all relevant literature on the topics of hospice usage and decision making by patients and physicians. Criteria for inclusion in the questionnaire were developed. The barriers chosen for inclusion were those that received the most corroboration from previous research studies and informed opinion articles over the past 10 years.[4-13] Further assurance that the barriers to be included in the survey were representative of the data available was obtained through review by a panel of experts knowledgeable in research and the topic of hospice usage. Reliability was established by a small pilot study of physicians who were asked to read each question from the survey and verbally share their thought process as they decided on the answer. Several minor wording changes were made after

Table 3. Number of barriers cited by physicians and corresponding average number of times hospice option offered to patients over past 2 years.

Total # of barriers cited	N = 97 n %	Average No. of physician offers* Range	Mean (SD)	Median
0	12 (12%)	0 - 10	3 (3)	3
1	14 (14%)	0 - 140	15 (36)	4
2	14 (14%)	2 - 60	13 (15)	6
3	19 (20%)	0 - 20	9 (6)	5
4	15 (15%)	1 - 200	23 (50)	10
5	12 (12%)	5 - 33	12 (8)	10
6	4 (4%)	4 - 15	8 (5)	7
7	2 (2%)	4	4	4
8	3 (3%)	5 - 23	14 (7)	15
9	1 (1%)	5	5	5
11	1 (1%)	5	5	5

*Median values determined to be the best gauge of average due to presence of several respondents who offered hospice to patients many more times than the average physician in the group.

Table 4. Frequency of responses by physicians identifying barriers to offering hospice to patients in past 2 years. N = 97

Barrier	n %
1. Patient or family hasn't accepted terminal diagnosis	48 (49%)
2. Patient or family desires to continue life-prolonging treatment	47 (48%)
3. Patient has no friends or family to help hospice provide care	39 (40%)
4. Patient wishes physician to make all medical decisions	14 (14%)
5. Difficult to tell patient about terminal diagnosis	16 (16%)
6. Difficult to prognosticate amount of time patient has to live	57 (59%)
7. Not enough information about local hospice program	14 (15%)
8. Uncomfortable talking about death and dying issues	6 (6%)
9. Feels like a professional defeat to suggest hospice	2 (2%)
10. Worry that offer of hospice might cause anxiety, loss of hope	18 (19%)
11. Concern over loss of revenue if care given over to hospice	0
12. No time to discuss all alternatives available to patient	3 (3%)
13. Hospice is not accessible (patient doesn't fit admission criteria...)	20 (21%)
14. Unsure if patient has adequate insurance coverage for hospice	12 (12%)
15. Medical community expects cure-oriented treatment	4 (4%)

input from the panel of experts and the participants in the pilot study.

The second portion of the study involved the collection of qualitative data from personal interviews with 13 physicians who indicated (on a reply postcard sent with the questionnaire) that they would be interested in sharing more information on the subject of local hospice usage. Physicians were asked four questions in a semi-structured interview format. They shared their views on referring patients to hospice and factors that might impact the physician decision to offer the hospice option to patients.

RESULTS

Replies were received from 120 physicians (82%) and 97 completed questionnaires (67%) were returned. The demographic characteristics of the respondents who returned surveys are displayed in Table 1. Physicians were grouped by demographic characteristic to look at the average number of times physicians in that group offered the hospice option to patients over the past two years (see Table 2). Demographic data also allowed a comparison of the estimated number of hospice offers made by physicians and the estimated number of their patients who used hospice. This showed that the majority of patients offered the hospice option (63%) opted to use this alternative. Statistical analysis proved the strong relationship between the number of hospice offers made by the physicians and patient usage of hospice (Pearson r = .93).

Table 3 compares the number of barriers cited by physicians to the average number of hospice offers made by physicians in the past two years. Physicians who cited four or five barriers tended to offer hospice more often than those who cited fewer or more barriers.

Analysis of the questionnaire data showed that four barriers to offering hospice were cited most frequently (see Table 4). These included the difficulty in prognosticating length of life, patient and family difficulty in accepting the terminal diagnosis, patient or family wish to continue life-prolonging treatment, and no family or friends available to help hospice provide care at home.

Analysis of data from the interviews of 13 physicians revealed five additional factors that might affect the physician decision to offer hospice to patients.

Physicians noted that at times they were con-

cerned that once they switched a patient's care over to the hospice program, there was a loss of contact or involvement with that patient. As one physician commented, "I see a patient for 5 to 10 years, have developed an open and positive relationship, then I'm replaced as the primary caregiver by hospice. I still have the responsibility, I still get the calls, but I'm a little more out of the loop."

A second potential deterrent suggested by those who were interviewed was the fact that admitting patients to hospice causes some inconvenience for physicians. Confusion over hospice admission criteria, paperwork, and frequent phone calls increase physician workload. One physician warned "to get physicians to make the decision to refer a patient to hospice, it's got to be like a light switch – either it happens or it doesn't – with all these qualifiers, they're just going to forget it."

Many of the interviewed physicians acknowledged a third barrier—a deficit in knowledge or understanding about local hospice programs. Some points of confusion revolved around hospice treatment restrictions, regulations for length of allowable coverage, the difference between home health services and hospice care, and the process of deciding when hospice care is warranted. Several wondered, "if pain control is adequate and the family is sufficient to take care of the basic needs, what else is left for hospice?"

The fourth barrier spotlighted by the interview data was the tendency to introduce the hospice option to patients late in the course of the patient's illness. Physicians explained this as a personal practice style. A representative comment was, "I analyze the role of hospice and bring it up as an issue at the point where I don't have active therapy to offer and to those who clearly have a limited time frame." Physicians also professed a tendency to delay discussions of hospice out of sensitivity to their patients' readiness to accept such an option. They wait until patients are "emotionally ready to start to think about comfort care only." One physician, noting that most of his patients lived only a few weeks once he admitted them to hospice, commented, "Maybe I use hospice later in the course than I should. I may wait too long."

The final barrier to offering hospice was the use of home health services instead of hospice. Reasons for use of home health for terminal care included patients living outside the geographic boundaries of the hospices and need for care that looked "too expensive or uncertain." Another circumstance that tended to hinder a physician offer of hospice was the fact that many patients are already using home health services. As one physician explained, "We're creatures of habit, and we have busy days. If home health workers are already going into the home two to three times a week, it's easier to escalate their involvement rather than switch to hospice." Another physician commented, "Rather than go into all this emotional trauma in trying to get patients thinking about hospice, it's just easier to get the visiting nurse program going."

DISCUSSION

Physicians with a specialty practice accounted for only 27% of the study population, but were responsible for 51% of the total numbers of hospice offers estimated by physicians for the past two years. Physicians who were interviewed for the second portion of this study offered a possible explanation for this phenomenon. They proposed that primary care physicians usually make the diagnosis of a life-limiting illness, then send the patient to a specialist for further testing and treatment, often losing contact with the patient at that point. As one primary care physician stated, "We don't see these patients back...we're getting disconnected..I think this plays a role in primary care referrals to hospice."

The findings of this study revealed that, although a few specialists reported heavy hospice usage, most physicians offered hospice to patients an average of six times within a two-year period. The majority (63%) of the patients that were offered this alternative opted to use it. This finding agrees with past studies[6, 10] showing the importance of the physician influence on the decision to access hospice care.

The physicians in this study who offered hospice most frequently were the ones who identified four to five barriers that hindered or delayed them from offering hospice. There were no studies found in the literature with similar data for comparison, but some suppositions can be made. It seems logical that physicians who have frequent contact with dying patients (and who thus would be the most apt to offer hospice) would also be the most aware of the complex end-of-life issues that can serve as barriers. These physicians would encounter the barriers, but also have the experience or education to guard against being overwhelmed by them.

The results of the questionnaire data showed physicians as identifying four significant barriers to their decision to offer hospice to patients. Interview data described five additional factors that influence physicians to stop or delay offering hospice to patients as an option for terminal care. Corroboration for each of the barriers can be found in previous studies[11-13] which looked at other areas of the country.

Written commentary from the questionnaires and answers to interview questions strongly pointed out that physicians have a devotion to their terminally ill patients and a willingness to use any resource available to affect the best care for them. Many physicians taking part in this study were honest about the fact that they did not always have a clear picture of hospice and when it should be involved. Some expressed a willingness to look at their own practice and evaluate the influence of barriers to offering hospice to patients.

Several physicians commented on the importance of an interdisciplinary approach to counteracting obstacles to presenting hospice as an option for terminal care. They particularly targeted nurses as key professionals for evaluating patient needs and identifying available resources to meet those needs. As one physician observed, "I rarely bring up hospice on my own because I don't think of it. The idea always comes from one of the nurses who sees the need for a little different resource and it is always appropriate." Another commented, "The key to getting people on hospice is at the nursing level. Educate nurses well on what hospice is and isn't..see what is best in terms of the resources that are out there. It would really be helpful."

Knowledge of the existence of the barriers identified in this study and an understanding of how they affect the decision-making process should encourage greater collaboration between health care professionals to ensure that patients receive full and timely information on all alternatives for end-of-life care. The decision of where to receive terminal care belongs to the patient. The responsibility to set the stage for a collaborative interaction that results in a fully informed, patient-centered decision belongs to all professionals on the health care team who are knowledgeable and familiar with the patient and family.

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Pica and Iron Deficiency A Case Report

James Wallace, MD, and Orlando Alvarez, MD

The word pica is derived from the Latin word for magpie, a bird known for eating a wide variety of substances. The DSM IV defines pica as eating of nonnutritive substances for at least 1 month, which is inappropriate to the developmental level, is not part of a culturally sanctioned practice, and is independent of another mental disorder.[1] Some authors have included foods in the category of pica if the eating of them seemed to be of a compulsive nature.[2]

Many substances have been reported in the description of pica, including clay, dirt, starch, stones, ashes, dust, toothpicks, matches, and hair.[3] Pica has been practiced in many different countries, serving as medicinal remedies, food additives, and cultural practices, especially during pregnancy. Pica has been reported for centuries, with Hippocrates writing, "a craving to eat earth" was associated with "corruption of the blood."[4] Since ancient times there has been speculation of a relationship between pica and iron deficiency. Crosby reported that 50% of his iron-deficient patients partook in pica.[5]

Patients with this behavior are often embarrassed, feel ashamed and reluctant to volunteer this information. Therefore, the subject needs to be approached in a very nonjudgemental manner. The following case illustrates pica behavior in a patient with iron deficiency anemia.

REPORT OF CASE

A 42-year-old African-American woman presented to a Milwaukee hospital complaining of squeezing substernal chest pain. The pain occurred with minimal exertion such as walking from room to room in her house, and it was relieved within 5 minutes by rest. She noted that she had been getting this pain around the time of her menses for the past year. Symptoms had increased in intensity along with her menses for the past 3 months. Her menses had stopped 3 days prior to coming to the hospital. She describes her menses as having been very heavy for years, requiring seven super absorbent pads daily. Menses typically lasted 7 days and occurred every 2 to 4 weeks.

Her past medical history included only nephrolithiasis in 1982. She was taking no medications and had no allergies. She had no history of psychiatric disorders, but had occasional depressive symptoms since the death of her boyfriend 1 year ago.

She also provided the history of eating clay and corn starch for the past 15 years. She obtained the clay by driving to Mississippi twice a year and getting a large freezer bag filled with clay each time. She also ate 1 pound of corn starch per week. She stated that she felt like something was missing and that she needed these substances. When she felt anxious she would eat starch, which she said had a soothing effect on her. The craving for starch escalated to the point that if she did not have any starch at home, she would go to the store, open the box, and begin eating in the food aisle. She also left work during the day to go home for starch when the craving intensified. She finally kept a box at work, in the car, and at home.

The physical examination revealed a slightly obese woman with normal vital signs. Head and neck showed pale conjunctive but no other abnormality. The lungs were clear. Cardiovascular exam showed a regular rhythm and normal rate with a II/VI systolic ejection murmur at the lower left sternal border. Abdominal examination was within normal limit with no hepatosplenomegaly. Pelvic exam was normal. Her extremities revealed brittle nails with slight spooning.

Laboratory data revealed a hemoglobin of 2.3 g/dl, hematocrit of 11.4%, white blood cell count of

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7.2 cells/microliter, and platelets of 678,000/microliter. Indices were an MCV of 64.6 fl, MCHC 24.4 g/dl, and an RDW of 32.6%. Iron studies showed a ferritin of <5 ng/ml, iron of 4.0 micrograms/dl, and a transferrin of 330 mg/dl, and a corrected reticulocyte count of 1.5%. Blood smear showed anisocytosis, shistocytes and target cells. Electrolytes, liver function tests, cardiac enzymes, and urinalysis were all normal. EKG showed normal sinus rhythm with nonspecific T wave changes in V4-V6.

During the hospitalization she was transfused with 6 units of packed red blood cells and started on oral iron therapy. Her angina resolved immediately after the initial transfusion and her craving for starch stopped while in the hospital. An abdominal ultrasound revealed uterine fibroids. She declined a hysterectomy and was started on depot leuprolide by the gynecologic consultant. A psychiatrist saw her and started her on paroxetine for depression.

DISCUSSION

The etiology of pica and its relationship to iron deficiency have been often debated. One theory holds that pica caused iron deficiency either by the substances directly inhibiting iron absorption or by replacing a substantial part of a normal diet. Others hold pica as a symptom of iron deficiency cured by iron replacement. Most of the studies of both theories are from the 1950s and 1960s and many of them are hampered by small sample sizes and failure to adequately evaluate iron stores.

The theory that clay may inhibit absorption of elements dates back to ancient times when it was used as a treatment for poisoning.[6] Minnich in 1968 showed that four Turkish clays significantly inhibited iron absorption, but three US clays did not. The higher the cation exchange capacity of the clay, the greater the impairment of iron absorption. In a separate study in Minnich's laboratory six people were given 1 pound of corn starch to eat prior to a test dose of iron sulfate. Two showed increased absorption, two showed no effect, and two showed decreased absorption.[7] Sayers showed similar results with inhibition of absorption in five samples of South African earth, but only two of six samples of ash limited absorption.[8] Talkington studied iron absorption after ingestion of either 10 grams of US clay or 60 grams of starch in normal and iron deficient persons, and he found that the people had no differences in the absorption from their baseline after the ingestion of these substances.[9] Blum, however, reported that there was a greater than 50% reduction in iron absorption after ingestion of 8 grams of laundry starch in people who absorbed iron excessively.[10] None of these studies, however, examined the clinical effect of decreased iron absorption and whether it was significant enough to cause iron deficiency. Also, up to 50% of the people with pica eat ice, a practice called pagophagia. Although it has not been studied, it is uncertain how ice would inhibit iron absorption or displace a normal diet.

Several studies have illustrated the effect of iron therapy on pica. Woods showed that even anemic mice preferentially obtained 96% of their water from ice as opposed to 45% in the controls. Correction of the hemoglobin to normal resulted in a decrease in ice consumption.[11] Lanzkowski studied 11 South African children who had pica and a mean hemoglobin of 7.89 grams. No iron studies were performed. After injection of intramuscular iron, all were cured of pica, usually within 1 to 2 weeks and the mean hemoglobin rose to 11.43 grams.[12] McDonald and Marshall studied 25 children with pica. Eleven of 13 children given intramuscular iron were cured of pica at 3 months compared to 3 of 12 receiving placebo. At 5 to 6 months the cure rate was not maintained and all relapses had a fall in their hemoglobin, suggesting a recurrence of iron deficiency.[13] Mohan found similar results in 58 South African children with unspecified pica. Twenty-nine of 39 children given oral iron were cured of pica at eight weeks and all by 12 weeks. In a control group receiving a multivitamin without iron only 1 of 19 was cured at eight weeks.[14] Reynolds treated 23 anemic ice eating patients, 11 of whom had a bone marrow examination showing diminished or absent iron stores. There was complete cure in 22 patients and dramatic improvement in the one remaining.[15]

Coltman performed the most conclusive experiment showing iron therapy to be curative of pagophagia. He studied 19 anemic patients, all with low serum iron levels, and eight with bone marrow aspirations showing absent iron. Patients either received oral or parenteral iron and all were cured of pica. The average time of cure was 11.6 days in the oral group compared to 5.7 days in the

parenteral group. A single blind study was also carried out with seven patients receiving a saline injection and then an iron injection 7 days later. Following the saline injection, ice consumption remained at baseline but dropped markedly after the iron injection. Six of seven were cured by the 7th day after the iron injection and all by 14th day.[16]

However, one study by Gutelius showed no effect of iron therapy on pica behavior when compared to controls. These results are questionable however, since the treated group and placebo both had an increase in hemoglobin, and iron studies were not performed.[17]

Thus, it appears that iron deficiency evokes pica which can be cured with the administration of iron, as in our patient. It still remains unclear what clinical significance, if any, clay and starch have on the absorption of iron. Pica, however, remains an important clue to iron deficiency and one that is often difficult to obtain.

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Proceeding from the 1998 Annual Meeting of the American College of Physicians - American Society of Internal Medicine, Wisconsin Chapter

Edited by Frank Graziano, MD, PhD

INTRODUCTION

The Wisconsin Chapter of the American College of Physicians - American Society of Internal Medicine annual meeting held in Racine, WI September 10-12 1998, was memorable because the Wisconsin Chapter of the American College of Physicians and the Wisconsin Society of Internal Medicine ratified the resolution to merge as one organization–the Wisconsin Chapter of the American College of Physicians - American Society of Internal Medicine. At this historic meeting, five residency programs from the State (Gundersen Clinic, Marshfield Clinic, Medical College of Wisconsin, Mt. Sinai Hospital and the University of Wisconsin Hospital and Clinics) presented posters and vignettes.

So that all may appreciate the quality of our Internal Medicine residents and the quality of care given by these residents in our Wisconsin residency programs, the abstracts for the poster and vignette sessions held at the Associates part of the meeting are presented below. Through the cooperation of the *Wisconsin Medical Journal*, we will publish these presentations yearly, however, there is nothing like the lively medical discussion these posters and vignettes produce at the ACP-ASIM meeting.

TRAVEL FEVER

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Case: A 39-year-old female presented to the University Health Services with a complaint of watery diarrhea, high fever, headache and photophobia x 5 days. The patient had recently traveled to El Salvador, staying with local families in a small rural village. The patient drank bottled water, had no direct exposure to animals and ate locally prepared foods. Additional exposures include wading barefoot in a local river. At presentation the patient stated that the watery diarrhea (4 to 6 bowel movements/day) began near the end of her stay in El Salvador and persisted upon her return to the United States. Eight to nine days after returning, she developed a high fever (102°F), chills, sweats, severe global headache, myalgia, low back pain, anorexia and malaise. The patient's vital signs were BP116/84, P 60, T 98.0, R 18, Wt. 137lbs. Her physical exam was unremarkable. Initial laboratory values revealed a platelet count of 85,000 and WBC of 2.0. The patient was administered IV fluids with labs redrawn the following day demonstrating a decline in platelet count from 85,000 to 65,000. The patient was then sent to the ER where on presentation the patient's physical complaints had subsided significantly over the last 24 hours. ER laboratory values were WBC 2.4 (38% Neutr., 47% Lymph, 6% Atypical Lymph.) Hct.35, Platelet 64,000, INR 1.1, Chem 7 and LFT's wnl with slight increase in AST at 49, Fibrinogen 235, D-Dimer .25-.50, and a negative malarial smear. Acute serology for dengue fever was drawn the following day and sent to the CDC. Results were positive for the IgM antibody, indicating a recent infection. The patient was provided with supportive therapy and her symptoms continued to subside over the following two months.

Discussion: Dengue fever is an acute febrile illness caused by a Flaviviridae virus. The disease is characterized by sudden onset of high fever with a biphasic (saddleback) pattern, chills, severe headache, skin rash and general malaise. Four serotypes are known, designated dengue types 1 through 4. Transmission is principle by the Aedes aegypti mosquito. Dengue hemorrhagic fever, the most serious form of the disease is characterized by fever, a platelet count of under 100,000, hemorrhagic manifestations and "leaky" capillary syndrome. Treatment of dengue fever is support therapy with IV fluids and pain medication. Dengue is probably the greatest mosquito-borne disease risk to travelers. The need for a dengue vaccine is increasingly becoming important for the traveler as well as endogenous populations.

PRIMARY CUTANEOUS T CELL LYMPHOMA, PLEOTROPHIC MEDIUM AND SMALL CELL TYPE

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Primary cutaneous lymphomas vary widely in clinical presentation, histology, immuno-phenotype, and prognosis. After primary GI lymphomas, primary cutaneous lymphomas represent the second most common group of nonHodgkin's extra nodal lymphomas; annual incidence is perhaps 1:100,000.

Unlike primary nodal lymphomas of the same histologic subtype, primary cutaneous lymphomas have highly characteristic clinical and histologic features. In addition,

there are found differences in the presence of specific translocations and in the expression of oncogenes, viral sequences, and adhesion receptors.

We present the case of a 17-year-old white female who was originally diagnosed with eczema but proved to have the pleomorphic small and medium cell variant of cutaneous T cell lymphoma. Unlike patients reported in a European series (60% survival at 10 years), our patient's disease has been extremely aggressive: She has progressed in spite of multiple courses of chemotherapy with ACE (Adriamycin, cisplatin, and etopaside), CHOP, and fludarabrine; remissions to date have been measured in weeks. Since the time of diagnosis, she has developed evidence of extra cutaneous involvement.

In an effort to obtain a durable remission and improve quality of life, we are now exploring relatively new treatment modalities. These include extracorporeal photopheresis therapy, interferon therapy, and fusion protein technology; each will be discussed in some detail. Unfortunately, our patient is nestled in a small subset of a small subset; there is little clinical data available to guide selection of optimal treatment.

AN ELDERLY MALE WITH DIABETES, NEUROGENIC BLADDER AND ABDOMINAL PAIN

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A 75-year-old male with poorly controlled diabetes, chronic renal failure, hypertension and a prosthetic aortic valve underwent L2-L5 laminectomy for spinal stenosis of 12 years duration. Post-op, anticoagulation was resumed because of his artificial valve. This resulted in the development of an epidural hematoma, which despite early evacuation resulted in a cauda equina syndrome with a neurogenic bladder requiring intermittent catheterization. On the 14th post-op day, the patient complained of increasing lower quadrant abdominal pain. Physical exam revealed a temperature of 101°F and diffuse suprapubic tenderness without rebound or guarding. Bowel sounds were present and normal. Stool was guaiac negative. Lab tests were remarkable for the presence of leucocytosis as well as hyperglycemia. Hematuria and glucosuria were present. Plain films of the abdomen showed air in and surrounding the bladder wall. Contrast Imaging was negative for communication with bowel. A diagnosis of emphysematous cystitis was made. Urine culture was positive for >100,000 E. Coli. The patient was treated with Ciprofloxacin for 2 weeks and recovered fully.

Emphysematous cystitis is a rare condition in which pockets of air are formed in and around the bladder wall. Fifty percent of patients are diabetic. Persons with neurogenic bladder are also greatly predisposed to developing this rare disease. Severity ranges from an asymptomatic condition to life-threatening cystitis. Treatment requires bladder drainage and antibiotics.

A MASQUERADING MEDIASTINAL MASS

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An 82-year-old man presented with acute onset right lower chest pain with radiation to the upper back and shortness of breath. Physical exam was remarkable for diminished breath sounds and dullness to percussion at the right lung base. Pleural fluid was consistent with frank blood. Computed tomography (CT) of the abdomen revealed an 8.5 by 3.5 cm mediastinal mass, which was absent on CT 4 months earlier. At the patient's request, he was managed conservatively and supported with blood products, but he unfortunately expired on the fourth hospital day. Autopsy revealed an amyloidoma with hemorrhagic dissection into the right pleural cavity. Serum immunofixation demonstrated a biclonal gammopathy of IgG-kappa and IgA-kappa, favoring a diagnosis of primary amyloidosis.

Localized amyloidosis ("amyloidoma") is a rare entity that can affect almost any solid organ. These masses are commonly mistaken for neoplasms, as was true in this case. Amyloidosis is classified according to its chemical composition as AL, primary amyloidosis, or AA, secondary amyloidosis. Secondary amyloidosis may confer a favorable prognosis.

TB OR NOT TB: THAT IS THE QUESTION

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A 39-year-old Tibetan male presented to the Rheumatology clinic for evaluation of joint pains of 2 months duration. He had pain and early morning stiffness involving mainly the small joints of his hands, elbows and knees prior to presentation. Review of systems was negative for any involvement of other systems. His past history was significant for a positive PPD test 6 years ago for which he had refused Isoniazid prophylaxis. His wife had taken a course of anti-tubercular drugs for TB a year prior to this. He also was a chronic carrier of Hepatitis B. Exam revealed a healthy appearing male. Joint exam revealed no effusions and a normal range of motion except in his hands, where his grip was weak because of stiffness. Respiratory system exam revealed a right basal dullness, with decreased vocal fremitus, suggestive of an effusion. Chest x-ray confirmed the effusions. He was placed under respiratory isolation, given the strong suspicion of pulmonary tuberculosis.

He had normal joint x-rays. Serum chemistries were significant for ESR of 92, RF positive at 1: 640, ANA positive at 1:140. He was slightly anemic with a hematocrit of 30%, with normal blood indices. A diagnostic thoracocentesis was performed. The glucose was 12 mg/dL, cell count was 302 nucleated cells per mm^3 with 80% lymphocytes, protein 5.9mg/dL, RF positive at 1:640, ANA positive at 1:160, pH was 7.1, ADA was non diagnostic. A pleural biopsy was then performed, and was negative for granulomas. The PCR and culture of the pleural fluid was negative for mycobacteria. A three-phase bone scan was done and showed a markedly increased symmetric uptake in his wrists, elbows, knees and ankles. A diagnosis of Rheumatoid Arthritis was made, and he was taken out of respiratory isolation, and begun on steroids. He had a quick and gratifying relief of his symptoms. He was subsequently begun on gold injections as a steroid sparing agent.

FIRST-TIME REFERRALS FOR MYOCARDIAL PERFUSION SCANS TO DETECT ISCHEMIA ARE USED MORE COST-EFFECTIVELY BY CARDIOLOGISTS THAN BY FAMILY PRACTITIONERS

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To determine if first-time referrals for SPECT myocardial perfusion stress scans being used cost-effectively, our nuclear cardiology laboratory retrospectively studied a total of 5,061 consecutive patients who were referred by either cardiologists (3900 patients) or family practitioners (1161 patients). Indications for the scan were chest pain or similar symptoms suggestive of active coronary artery disease. Either exercise or pharmacologic stress tests were performed. Test findings suggestive of ischemia were defined as an abnormal diffuse or regional perfusion pattern after stress that improved with rest.

Our comparison showed that patients referred by cardiologists and those referred by family practitioners were similar in age (62.3 yrs vs. 63.2 yrs) (P=.07) and that men in both groups were more likely to have findings of ischemia than females: 32.9% vs. 23.3% for those referred by cardiologists; 28.8% vs. 20.0% for those referred by family practitioners. For each group, the gender difference was statistically significant (P=.001). Regardless of gender, SPECT perfusion tests were positive for ischemia more often in patients referred by cardiologists; this difference was also statistically significant (P<.001).

Conclusion: Our study showed that patients referred for a first-time SPECT myocardial perfusion scan are found to have a significantly higher rate of ischemia when the referral is made by a cardiologist than by a family practitioner, indicating that family practitioners should consider whether to refer a patient to a cardiologist or to refer directly for a myocardial perfusion scan.

LATE RELAPSE OF MALARIA

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A 46-year-old Asian Indian male presented to the Emergency Department with history of fever for the past 4 days. The fever was intermittent, was associated with chills and rigors, myalgias and generalized headaches. There were no other localizing symptoms. Past medical history was significant for previous episodes of malaria and Enteric fever, treated with chloroquine and Ciprofloxacin respectively. There was no history of treatment with primaquine. The last episode of malaria was 1 year ago and the patient was in the United States for about 11 months. There was no other significant travel history. On examination, the patient was febrile, toxic and dehydrated. There were no other findings on examination. Laboratory evaluation was significant for mild normochromic normocytic anemia (11/32), normal reticulocyte count, thrombocytopenia(54,000), hyperbilirubinemia (3.3), and low haptoglobin (34). The peripheral smear was positive for trophozoites and schizonts of Plasmodium vivax. The patient was treated with oral chloroquine and subsequently with primaquine to effect radical cure. The patient defervesced rapidly and has an uneventful hospital course. He remains asymptomatic at a 3-month followup.

Malaria is caused by a protozoan parasite of the genus Plasmodium. Two of the four species causing human infection, P.vivax and P.ovale, cause recurrent disease by relapsing infection. The life cycle of all Plasmodium species is initiated when the sporozoites inoculated by the mosquito reach the hepatocytes and start preerythrocytic schizogony. This results in release of merozoites which infect erythrocytes and complete the asexual phase of the life cycle. The paroxysms of fever and chills are produced by the intravascular hemolysis caused by the release of merozoites from red blood cells, also leading to anemia and hyperbilirubinemia. Thrombocytopenia is seen in 50% to 80% of patients with malaria. It is now known that some of the sporozoites initially inoculated by the mosquito do not begin asexual reproduction but remain dormant as Hypnozoites in hepatocytes. Studies quote a relapse rate of 25% to 30% in endemic areas after proper treatment. Relapse is usually seen within 2 to 3 months (early) especially in endemic areas. Relapse after 3 months (late) is uncommon. 4-Aminoquinolines like chloroquine are effective in destruction of the erythrocytic phase but do not effect the Hypnozoites. This explains the multiple relapses seen in this patient who had been treated with chloroquine but not with primaquine, which is effective in eradicating the hynozoites and preventing relapse in 90% of cases.

PROGRESSIVE DYSPNEA - A CASE REPORT OF IDIOPATHIC PULMONARY FIBROSIS

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A 55-year-old man with no significant past medical history presented with a several month history of progressive shortness of breath with exertion. Pulmonary function tests 2 weeks prior to admission demonstrated a severe restrictive defect. His shortness of breath worsened and on the day of admission he was found by his wife to be dyspneic and cyanotic. Physical exam showed the patient to be in moderate respiratory distress, with a respiratory rate of 42 breaths per minute and oxygen saturation 82% on 15-liter nonrebreather facemask. Pulmonary exam was significant for fine crackles posteriorly to the mid lung fields bilaterally. The remainder of his physical exam was unremarkable. Arterial blood gas revealed pH 7.45, pCO2 35, pO2 49, HCO3 24 on 15 liters O2. Chest x-ray demonstrated diffuse bilateral interstitial infiltrates. The patient was placed on mechanical ventilation. He underwent bronchoscopy which demonstrated mild diffuse mucosal erythema. Transcopic lung biopsy was subsequently performed, which demonstrated severe interstitial fibrosis with acute and chronic inflammation. The biopsy tissue was felt to be compatible with late stage appearance of usual interstitial pneumonitis. The patient proved to be very difficult to wean from mechanical ventilation. He was briefly extubated for a few days, but required reintubation for respiratory failure. Despite aggressive therapy, his pulmonary status failed to

improve, and at the request of the family, ventilator support was withdrawn and the patient subsequently expired. Idiopathic Pulmonary Fibrosis (IPF) is a progressive interstitial lung disease of unknown etiology. The clinical features can be widely variable, ranging from an insidious onset over years to a rapidly fulminant and fatal presentation. I will discuss the current state of knowledge regarding IPF, focusing on the pathologic disease classification of the disease and its implications regarding treatment.

"I CAN'T GET MY WEDDING RING OFF" — A CASE REPORT OF ACROMEGALY

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Acromegaly is a rare condition that results from the excess production of growth hormone in the anterior lobe of the pituitary gland. It is characterized by excessive skeletal growth and soft tissue enlargement. A 49-year-old Caucasian female with past medical history only significant for renal lithiasis presented with a one-year history of headache, weight gain, inability to remove her wedding ring despite resizing approximately five years ago, change in shoe size from an 8 to a 10 over five years, and an inability to wear lower dentures. Her family also complained of increasing snoring. Physical exam was positive for coarse facial features, grossly enlarged tongue which interfered with her speech, protuberant mandible, twice normal diffusely enlarged thyroid gland, and thickening of the soft tissue of the hands and feet.

Initial studies included a skull X-ray revealing a "ballooning" of the sella turcica. MRI confirmed a pituitary macroadenoma. Significant laboratory studies included IGF-1 580 (normals 32-93); otherwise, prolactin, thyroid, HbA1C and electrolytes were normal. The patient subsequently underwent transsphenoidal resection of the macroadenoma. Pathology revealed adenoma producing prolactin and growth hormone. Post-op IGF-1 level was 124. She is currently being treated medically with bromocriptine 5 mg PO TID.

Acromegaly patients suffer significant long-term morbidity and mortality from respiratory and cardiovascular disease, as well as cancer. The primary goal of treatment is rapid and complete normalization of growth hormone levels. This has proven to be difficult, despite surgical, pharmacological and radiological treatments. Special emphasis is on medical management, including somatostatin analogues.

A CASE OF TAKAYASU'S ARTERITIS

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Takayasu's arteritis, also known as aortic arch arteritis or pulseless disease, is a vasculitis which affects large and medium sized arteries. The largest number of cases has been reported in Japan, India and China, primarily in women and children. The incidence of Takayasu's arteritis among Caucasians in Omsted County, MN is 2.6 cases per million per year.

We report on a 43-year-old female who presented to the Marshfield Clinic with the chief complaint of headache and visual changes. The head CT showed peculiar low density defects. A MRI was suggested to differentiate between infection, ischemia or a demylinating process. The MRI showed multiple signal abnormalities and vasculitis was considered in the differential given her history of headache. She was diagnosed with Takayasu's arteritis on the basis of aortic arch arteriogram which is the gold standard study for this diagnosis. The cornerstone of the treatment of Takayasu's arteritis is glucocorticoids in order to suppress symptoms and to stabilize or reverse the stenosis. There is rapid improvement in pulses and the ischemic symptoms resolve if treatment is started before fibrotic tissue is laid down. This patient was started on steroids while awaiting the results of a temporal artery biopsy. The diagnosis of this uncommon disease was facilitated by an understanding of the suggestive characteristics of the MRI together with the clinical presentation.

A CASE OF STAPHYLOCOCCUS AUREUS ENDOCARDITIS WITH TYPICAL SKIN LESIONS, AND A COMPLETE REMISSION OF ACUTE RENAL FAILURE

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A 54-year-old man with a history of rheumatic fever in childhood and heart murmur presented with fever, malaise, myalgias and arthralgias for 5 days. Cardiac auscultation revealed a grade 3/6 holosystolic murmur at the apex which radiates to the lower left sternal border. Two separate blood cultures were positive for staphylococcus aureus. Admission laboratory data included: BUN 94, Cr. 6.6; Urinalysis had 11-20 RBCs, 0-2 RBC casts and 40mg/dl protein; Liver function tests (LFTs) showed total bilirubin 6.6, direct 5.5, AST 112, ALT 75, GGT 271. (Bun, Cr. and LFTs became normal 7 days later). Transthoracic (TTE) echocardiography showed moderate mitral valve insufficiency, thickening and prolapse without overt vegetations. Cefazolin and Gentamicin were started. During the course, he developed painful skin lesions on the fingertips and a painless lesion on the sole from day 2 to day 4. The second TTE on day 14 was stable. On day 23, he noted another painful red lesion over the dorsum of the left foot measuring 3 cm in diameter. The third TTE showed worsening mitral insufficiency and new pulmonary hypertension. Mitral valve replacement was done on day 24. Pathology report showed destructive mitral valvulitis with a large septic vegetation containing gram-positive cocci.

Discussion: 1) The patient met one major Duke's criterion and at least three minor criteria, regardless of TTE findings. Serial TTE could monitor mitral valve damage, but failed to detect the vegetations. 2) The patient developed at least two classic types of associated skin lesions. One was noted as irregular, nontender, hemorrhagic, with diameter from 1mm to 4 mm, consistent with Janeway lesion. The other type lesion was tender, indurated, blanchable, and had a round to oval outline, which is consistent with Osler's node. These lesions had been stable at least for 2 weeks. 3) Glomerulonephritis is the possible mechanism for the acute renal failure, which is supported by the active urinary sediment.

The patient had normal Cr. during the embolic phenomenon, aminoglycoside treatment and cardiac surgery. Another possible mechanism is sepsis syndrome associated with multiple organ failure. The patient had simultaneous LFTs abnormalities. The patient recovered completely from the advanced renal failure.

DERMATOMYOSITIS AND ITS ASSOCIATION WITH MALIGNANCY: A CLASSIC PRESENTATION

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This is a case of a 78-year-old female patient who presents with proximal myalgia, muscle weakness, and a several month history of intermittent rectal bleeding with left lower quadrant abdominal discomfort. On exam a classical heliotropic rash and Gottron plaques were noted. Laboratory data revealed elevation of her creatine kinase. Dermatomyositis and its association with malignancy is well described in the literature. In this patient a barium enema revealed an abnormal narrowing and loss of colonic mucosal pattern. Subsequent colonoscopy was performed. A colonic mass at 65 cm. was discovered. Biopsy of the mass was significant for poorly differentiated adenocarcinoma.

When a patient presents with dermatomyositis an evaluation for a primary malignancy must be considered. If a malignancy is discovered, the treatment of choice is to remove the tumor if possible. Upon treatment of the primary malignancy, the symptoms of dermatomyositis should resolve. The use of glucocorticoids is warranted until the primary malignancy can be treated. The prognosis of patients with dermatomyositis depends on the discovery of a primary malignancy, the patient's age, and other comorbid conditions.

This case and the pictures presented show dermatomyositis in its classic form. Truly, a picture is worth a thousand words.

TICK TALK: IT'S LYME TO GET GOING!

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Lyme disease is relatively common in Wisconsin and the Midwest. It can often evade diagnosis, masquerade as other illnesses and present with protean, non-specific signs and symptoms that are easily compatible with multiple other diagnoses.

We present a 54-year-old woman whose initial symptoms include severe, localized back pain, anorexia, and fevers. Eventually, she developed transaminase elevations most consistent with hepatitis. Thorough evaluation and testing revealed only acute infection with Borrelia burgdorferi. Treatment for Lyme disease was begun, and within days, her symptoms improved drastically, and gradually, her transaminases returned to normal.

Mild elevations in transaminase are common in certain infections, but transaminase elevations of this magnitude are not typically associated with Lyme disease. This case demonstrates multiple atypical features of Lyme disease and reminds clinicians that this diagnosis should be entertained in a wide variety of clinical scenarios.

STROKE IN ATRIAL FLUTTER: FREQUENCY AND OUTCOMES IN THE GENERAL POPULATION

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Background: The Framingham Heart Study, the first epidemiologic investigation to show an increased stroke risk in "atrial fibrillation" (AFIB), defined that condition electrocardiographically to include subjects with *either* AFIB or atrial flutter (AFLTR). Grouped initially with published reports describing the clinical course of patients with AFIB, the long outcome of patients with AFLTR remains unknown.

Objective: To determine the frequency and significance of TIA or stroke in AFLTR patients.

Methods: We used the resources of the Marshfield Epidemiologic Study Area (MESA), a region covering practically all medical care received by its 55,000 residents. We reviewed the medical records of ~2,000 potential cases. Incident cases of AFLTR were defined as those in whom the first episode of AFLTR (defined by standard ECG criteria) was documented from 7/1/91 to 6/30/95. All cerebrovascular events occurring during follow-up were classified according to 1998 AHA Stroke Outcome Classification (AHA SOC) System. Our results remained significant after adjustment for the ~40% of patients with concurrent AFIB.

Results: During ~230,000 patient/years of enrollment, new-onset AFLTR was diagnosed in 181 patients. Follow up (mean duration, 4 years) was available in all 181 (100%) patients. Although ~40% had concurrent AFIB, during follow-up, 29 (16% of all pts) had one or more stroke or TIA. The diagnosis of stroke or TIA was confirmed in all 29 patients; 90% had formal neurology consultation and 72% had head CT Scan or MRI. At the time of the acute cerebral event; 37% were on aspirin and 24% were on warfarin (mean INR, 1.4). Stroke or TIA was the initial clinical manifestation of the newly diagnosed AFLTR in 6% (11 of 181) of patients in the group as a whole and in 34% (11 of 29) of those with an acute cerebrovascular event.

Patients with AFLTR in the general population are at an increased risk of suffering large and incapacitating cerebrovascular events. Strokes occurred 4 times more commonly than TIAs (70% versus 21%). In 27 of 29 (93%) patients, an AHA SOC score was determined following their first acute cerebrovascular events. Using the "Severity of Impairment" Criteria, 59% of patients had a "B or C Level" disability (more than "mild" impairment). In a "Function Level" or Death Scale analysis, 44% experienced Death or a Score of >III (partial disability or worse).

Conclusions: 1) This report is the first investigation on the neurologic complications of AFLTR in the general population. 2) Our findings challenge prevailing thoughts regarding the "benign" prognosis currently associated with AFLTR. In the general population, patients with AFLTR experience acute cerebrovascular events with a frequency and severity similar to that reported for patients with AFIB by the Framingham investigators and other workers. 3) Our data

showed the need for more clinical and epidemiologic research on common arrhythmias.

CASTLEMAN'S DISEASE

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Case: 73-year-old white male presents with fever, anorexia and dry cough unresponsive to course of Zithromax. Patient returns to ER with persistent cough, odynophagia and nausea. Physical exam reveals low grade temperature, tachypnea, hypoxia and patient in respiratory distress. Chest x-ray shows mediastinal widening and CAT scan reveals a 2cm left hilar mass with multiple mediastinal lymph nodes. Transthoracic biopsy reveals angiofollicular hyperplasia also known as Castleman's disease.

Discussion: Castleman's disease was first described by Frank Castleman in a group of patients with localized mediastinal lymph node enlargement. It has 2 histologic types including the hyaline vascular and the plasma cell variant. The plasma cell type is often found in patients with multicentric disease which presents as a systemic illness with disseminated lymphadenopathy. The hyaline vascular type is a localized disease, 70% of which are intrathoracic. The pathogenesis is unknown however certain theories suggest overproduction if IL-6 causing autocrine proliferation of fibroid dendritic cells. The localized type is curable by surgery while the multicentric variant is less responsive overall with only minimal improvement with chemotherapy, radiation, and steroids.

PRIMARY RHABDOID TUMOR OF THE LUNG

Donald H. Strong, MD, Michael Erdmann, MD
Medical College of Wisconsin, Milwaukee, WI

Case: A 44-year-old white male presents from an outside facility with increasing lethargy, chest x-ray findings of a cavitary pulmonary nodule and a CT scan of the head with findings of multiple posterior fossa nodules. Shortly after arrival, the patient developed respiratory arrest and clinical signs consistent with uncal herniation which was confirmed with a CT scan. A percutaneous ventriculostomy tube was placed without improvement in clinical status and ventilatory support was withdrawn. On autopsy, the patient had a single lung nodule, and multiple brain and small bowel lesions consistent with a Rhabdoid tumor by histology, special stains, and electron microscopy.

Discussion: Rhabdoid tumors, first described in 1978, were initially thought to represent a Rhabdomyosarcomatous patten of an especially aggressive Wilm's tumor in the kidneys of children, but has been found to be histologically dissimilar. The majority of Rhabdoid tumors are well defined types of tumors, i.e., Adenocarcinoma and soft tissue sarcomas, with a component of Rhabdoid cells. Extra renal sites include many organ systems. To date, only 01 cases of primary lung Rhabdoid tumors have been reported. Rhabdoid cells represent a common phenotypic endpoint of clonal evolution that serves as a marker for poor prognosis. Little is known about treatment options for this particular tumor type. What is clear, is that rhabdoid cells, regardless of tissue type, confer a more aggressive behavior than similar tumors without a rhabdoid component.

HYPERCALCEMIA ASSOCIATED WITH SARCOIDOSIS

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Sinai Samaritan and St. Luke's Medical Centers, Milwaukee

A 34-year-old white male presented to his primary care physician with a 2-week history of polyuria, polydypsia and generalized fatigue. Initial evaluation included comprehensive metabolic panel which revealed a serum calcium of 16.7 mg/dl, creatinine of 2.5 mg/dl and BUN of 38 mg/dl. The patient was admitted to the hospital for further evaluation and treatment. He denied any other complaints, including nausea, vomiting, constipation or weight loss. He admitted to having intermittent night sweats. The patient owns and operates construction company with his wife and works outdoors. At presentation the patient had a clear sensorium. He had a deeply tanned appearance. Physical exam including neurological exam was unremarkable. Admission chemistries: Na 142 mmol/l, K 3.8 mmol/l, Cl 102 mmol/l, bicarbonate 29 mmol/l, BUN 38mg/dl, creatinine 2.7 mg/dl, glucose 82mg/dl, calcium 13.5 mg/dl, ionized calcium 1.67 mmol/l (1.17-1.31) and phosphorous of 3.9 mg/dl. Chest x-ray and CT imaging demonstrated mediastinal and bilateral hilar adenopathy. The patient underwent mediastrinoscopy. Biopsy of the paratracheal lymph nodes revealed non necrotizing granulomatous inflammation consistent with sarcoidosis. He was treated with IV hydration and IV pamidronate. Other laboratory data included: PTH-relate peptide of 0.6 pmol/L an ACE level of 85 U/L, 1.25 (OH) 2 Vit D of 87, 25(OH) 2 Vit D of 41 ng/ml. By the time of discharge ionized calcium was 1.47 mmol/l, creatinine had corrected to 1.8 mg/dl. BUN was 23 mg/dl.

Sarcoidosis is a multisystem disease of unknown etiology. Hypercalcemia occurs in 10% of cases, almost exclusively in patients with pulmonary involvement. Abnormalities of calcium metabolism are secondary to dysregulated production of 1,25(OH) 2 Vit D by activated macrophages within sarcoid granulomas. There have been previous reports of hypercalcemia induced by sun exposure in patient with sarcoidosis. We speculate that the significant sun exposure this patient received may have contributed to substrate availability for non renal production of 1,25 (OH) 2 Vit D and exacerbated the degree of hypercalcemia.

Treatment: The drug of choice is prednisone 20-40mg/d. chloroquine or hydrochloroquine are alternative agents if there is a contraindication to use of corticosteroids. We used pamidronate given the degree of hypercalcemia with initial presentation.

MORTALITY AND CLINICAL PREDICTORS OF DEATH IN NEWLY-DIAGNOSED ATRIAL FLUTTER: A STUDY IN THE GENERAL POPULATION FROM THE MARSHFIELD EPIDEMIOLOGIC STUDY AREA (MESA)

Juan Granada, MD, Humberto Vidaillet, Jr, MD, FACP, Robert Vierkant, MAS, William Uribe, MD, Armando Falcon,

MD, Frank DeStefano, MD, Peter Smith, MD, John Hayes, MD, Elaine Eaker, ScD; Marshfield, WI

Background: Other than atrial fibrillation, atrial flutter is the most common chronic tachyarrhythmia seen in general practice. Although atrial flutter is considered a common precursor to atrial fibrillation, there is little data to suggest that atrial flutter itself is a harbinger of poor prognosis. At this time, radiofrequency ablation is considered curative and anticoagulation is not recommended for most of these patients.

Objective: To determine the frequency, cause and clinical predictors of death among patients with newly diagnosed atrial flutter in the general population.

Methods: We used the resources of the Marshfield Epidemiologic Study Area (MESA), where the combined medical record system captures virtually all medical care received by its 55,000 residents. A review of the medical records of 1,989 potential cases identified all cases of newly diagnoses atrial flutter from 7/1/91 to 6/30/95.

Results: A total of 181 cases of newly diagnosed atrial flutter were identified. Their mean age was 72 years and 112 (62%) were males. At the time of initial diagnosis of Atrial Flutter, Atrial Fibrillation was also found in 136 patients (75%). During 3.5 years of follow up, 43% died at a mean interval of 23.2 months from the time of diagnosis. Among the 77 deaths, 48% were due to cardiac disease, 10% due to stroke and 42% due to other causes. From 12 pre-selected clinical variables, 10 were statistically significant in a univariate analysis. After adjusting for co-morbid conditions, independent predictors of death were age >80 years (RR 4.11, CI 95%, 1.95, 8.68): Atrial Flutter PLUS Atrial Fibrillation Status (RR 2.44, CI, 95%, 1.28, 4.76): COPD (RR 1.93, CI, 95%, 1.13, 3.29) and HTN (RR 1.63, CI 95%, 0.99, 2.70). Patients with all four of these risk factors were more than 30 times as likely to die than those without any of them.

Conclusions: 1) This study, the first population-based investigation of atrial flutter, challenges many existing beliefs regarding this common condition. 2) Our findings show that patients with atrial flutter in the "real world" and the condition itself are different in the general population than in tertiary care centers. 3) After adjustment, advancing age, concomitant atrial fibrillation, COPD and HTN were the strongest predictors of death. 4) Our data demonstrate the importance of population-based research and the need of further investigation on the epidemiology of common cardiac arrhythmias.

AN UNUSUAL ABDOMINAL MASS

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Learning Objective: Low molecular weight heparins are being used widely in clinical practice. Though they are considered safe, sometimes they can cause injection site hematomas.

Case: An 87-year-old male, a nursing home resident was admitted to the hospital with a 2-day history of nausea, vomiting and fever. Cured of carcinoma of colon, he also has Paget's disease of the bone. Three weeks prior to this hospitalization he was treated with Enoxaparin 60mg SQ BID for suspected deep vein thrombosis of the left leg. His medications included 81mg of aspirin and he was not on any other NSAIDs. Physical exam: abdominal mass about 8cmx6cms, in the epigastrium. Laboratory Data: WBC 32,500 with no left shift, hemoglobin 6.3mg/dl, hematocrit 20, platelets 149,000. Alk.phos 469 IU/ml. Calcium 8.2mg/dl, albumin 3.2 g/dl. Bilirubin was normal. PT was 12.9 secs and PTT was 38.3 secs (nl. 19-33). A CT scan of the abdomen showed two abdominal masses in the rectus abdominis muscle, measuring 6cms and 2cms in diameter. These were solid with an inhomogenous attenuation, suggestive of a neoplasm. However, a tru-cut biopsy specimen confirmed the diagnosis of a hematoma.

Discussion: Hematologic complications with low molecular weight heparins are not uncommon. Injection site hematomas have been reported with the use of low molecular weight heparins. Cases of spinal hematomas following spinal anesthesia in patients earlier treated with low molecular weight heparins have been reported. The FDA has recently issued a public health advisor regarding the same. While safe, low molecular weight heparins should be used with caution especially when given along with antiplatelet drugs as they can cause injection site hematomas.

MILD ALKALI SYNDROME: A NEW RESURGENCE

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Introduction: Mile Alkali Syndrome (MAS) consists of the triad of hypercalcemia, metabolic alkalosis and renal insufficiency. It was first reported in 1923 with the introduction of the Sippy ulcer regimen and is a rare entity with modern ulcer therapy. However, with the use of calcium carbonate as a antacid or for osteoporosis prevention, the syndrome is being more frequently encountered.

Case Report: A 51-year-old Caucasian male was hospitalized after prolonged use of calcium carbonate for dyspepsia. He complained of confusion, weakness, nausea, vomiting and myalgias. Physical exam was significant for hypertension, confusion, generalized weakness and dry mucous membranes. Laboratory analysis revealed hypercalcemia (17.5 mg/dl), and elevated bicarbonate (29mmol/L), and an elevated creatinine (2.9mg/dl). The patient was treated with intravenous hydration, furosemide diuresis and cessation of the calcium carbonate. The patient had complete resolution of his symptoms and normalization of his creatinine, calcium and bicarbonate.

Discussion: The diagnosis of MAS requires a careful history. It has been reported that 2 to 8 grams of elemental calcium, ingested with bicarbonate, has been associated with the syndrome. There are three forms of MAS: Acute, Intermediate and Chronic ranging from reversible to irreversible. If MAS is diagnosed early in its course the

manifestations are reversible with conservative treatment. Thus, MAS can cause life threatening hypercalcemia and renal failure that is treatable and reversible if diagnosed early in the course of the syndrome.

CARDIAC EMBOLIZATION

Lyle Ignace, MD, Marilyn Schapira, MD
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Case: A 50-year-old man presented from an outside hospital for continued medical management of presumed acute pulmonary embolism. Shortly after transfer, the patient developed abrupt onset of sharp, pleuritic, right sided chest pain worsened by lying supine and causing shortness of breath. His examination was significant for tachycardia, hypotension, tachypnea, diaphoresis and in respiratory distress. The patient had distended neck veins and clear lung fields bilaterally with normal first and second heart sounds without extra heart tones. An AP chest radiograph revealed a metallic foreign body along the right border of the cardiac silhouette. The twelve lead ECG demonstrated 3 mm concave upward ST segment elevations in the inferior and precordial leads. Echocardiography was performed showing a dilated, diffusely hypokinetic right ventricle with grossly normal left ventricular function without evidence of pericardial effusion, no foreign body was visualized. Laboratory studies revealed bicarbonate 11 mEq/L, BUN 68 mg/L, creatitine 6.9 mg/L, INR 13.45, AST 11,155 U/L, ALT 4049 U/L, and Hb 8.5 mg/dl. Pulmonary artery catheter readings demonstrated equalization of diastolic compromise. Pericardiocentisis was performed immediately and yielded 400 cc of grossly hemorrhagic fluid. CT scan of the chest demonstrated the metallic foreign body to be within the posterior wall of the right ventricle.

The patient had undergone an open reduction internal fixation procedure for a comminuted distal left radius fracture four years prior to admission. Two Kirschner wires were utilized for the radius fixation. Current radiographs of left wrist show the presence of only one Kirschner wire. Thoracotomy was performed revealing a 2.5 cm Kirschner wore protruding from the right ventricle.

Discussion: Kirschner wire migration causing acute pericarditis complicated with pericardial tamponade is a rare event. Wires have been shown to migrate to major vascular structures including subclavian artery, ascending aorta, pulmonary artery and the heart with fatal outcomes.

EMPHYSEMATOUS CYSTITIS: *A CASE PRESENTATION*

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Medical College of Wisconsin

Emphysematous cystitis is an inflammatory condition of the bladder associated with gas, produced by organisms, in the bladder wall or lumen. Approximately 185 cases have been reported in the literature since Eisenlohr first described this clinical entity in 1888. Emphysematous cystitis is seen most commonly in diabetics and patients with neurogenic bladder or bladder outlet obstruction. The most common pathogens are gram negative rods such as E. Coli, Klebsiella species, and Proteus. The pathophysiology of this disorder involves fermentation of glucose within the bladder wall or lumen to form carbon dioxide gas. In most cases, emphysematous cystitis has a rather benign course and resolves rapidly with treatment of the underlying disorder and appropriated antibiotics.

Case Presentation: The patient is an 80-year-old Hispanic female with a 5-day history of diffuse abdominal and flank pain. Fevers, chills and dysuria accompanied these symptoms. She has a past medical history significant for diabetes mellitus. On physical exam she was dehydrated and hypotensive with leukocytosis, hyperglycemia, and a positive urine screen. A KUB revealed air within the bladder wall that was confirmed by CT and the diagnosis of emphysematous cystitis with urosepsis was made. She promptly responded to fluids, antibiotics, and correction of her hyperglycemia. E. Coli grew out of both urine and blood cultures. Follow-up KUB revealed resolution of the air within the bladder wall.

THYROTOXIC HEART DISEASE

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Heart failure associated with hyperthyroidism is classically characterized by high output heart failure. We would like to present a patient with thyrotoxicosis presenting with pulmonary hypertension and right-sided failure.

A 49-year-old African-American female was well until 1996 when she started to have fatigue, dyspnea, and generalized anxiety. She presented later that year with anasarca.

The physical exam was remarkable for thyromegaly, jugular vein distention, hypatojugular reflux, loud S2, holosystolic murmur and massive edema. Initial labs showed normal CBC and electrolytes, LFT's, renal function, and albumin. Chest x-ray was normal. The TSH level was undetectable; free T4 level was 3.8 (normal range less than 1.4). An echocardiogram showed right ventricular dilitation with severe pulmonary hypertension. In addition there was moderate to severe tricuspid regurgitation, moderate mitral regurgitation, and an estimate left ventricular ejection fraction of 40%.

The patient was started on diuretics, a beta blocker, and Tapizol. She subsequently received I^{131} after better control of her initial symptoms. By January she was clinically euthyroid with TSH levels of 1.47. A repeat echocardiogram in February 1998 showed marked improvement in her pulmonary hypertension and right ventricular function.

Discussion: About 30% of cases of hyperthyroidism present with thyrotoxic heart disease. The patient's elevated right sided pressure was possible due to increased blood volume and a more rapid venous return. There may also be organic change in pulmonary vasculature due to the hyperdynamic state.

In conclusion, thyrotoxicosis should be considered as a possible cause of pulmonary hypertension and right ventricular failure.

Partnering Among HCFA, PROs and Medicare + Choice Organizations

Judy Frisch, RN, MBA, Jay A. Gold, MD, JD, MPH, and Carol J. Ferguson, MS, CPHQ

Introduction

The Health Care Financing Administration (HCFA) has initiated the Quality Improvement System for Managed Care (QISMC) program to improve the health and satisfaction of Medicare and Medicaid enrolled beneficiaries in managed care organizations. The principal goal of the QISMC program is to advance organizations along the quality improvement continuum for high quality care.

New Initiative

The QISMC initiative is a new approach to evaluating the quality of care delivered by Medicare Managed Care Organizations (MCOs). Before this program, HCFA and the state-reviewed MCOs were appraised based on their internal organizational structure and capacity to improve care. This new approach emphasizes quality improvement by use of the established QISMC standards and guidelines. These are key tools for HCFA and the states with which to implement the quality assurance provisions of the Balanced Budget Act.

Authors are associated with MetaStar. Ms. Frisch is Project Coordinator; Dr. Gold is Senior Vice President, Principal Clinical Coordinator and Interim Medical Director; Ms. Ferguson is Manager of Projects. Reprint requests to: Jay A. Gold, MD, JD, MPH, MetaStar, 2909 Landmark Place, Madison, WI 53713.

Rationale for Program

The QISMC program is committed toward a common goal of assuring consistent high quality and cost effectiveness by developing and implementing ways to measure improved outcomes for health care and services. Because HCFA recognizes that MCOs vary in their level of quality improvement experience, they are committed to working with them in their current quality improvement efforts to assist their progress along the continuum of quality care.

The QISMC initiative provides a set of standards and guidelines, comprised from statutory and regulatory requirements, addressing the operation of an internal program of quality assessment and performance improvement. They present a framework for achieving improvements in enrollee health, functional status, and satisfaction over the broad spectrum of care and services. MCOs will show compliance with the basic requirements for administrative quality infrastructure and beneficiary protection by their participation in quality improvement projects. The results will be reflected in MCOs reports on standardized measures of health outcomes and enrollee satisfaction.

PRO Involvement

As part of the QISMC program, Medicare-contracting health plans are required to design and implement at least two health care quality projects per year, one sponsored by HCFA and required of plans. In the national projects, the MCO will seek to improve performance on at least one predefined indicator for a particular clinical area. The HCFA national topic for 1999 is diabetes. The second project will be developed by the MCO. HCFA is contracting with Peer Review Organizations (PRO's) to provide support and assistance in the design and implementation of the QISMC required studies.

Benefits

MetaStar, in partnership with 40 ambulatory settings, is currently leading a major statewide diabetes project. Over the coming years we will be doing additional projects to improve the rates of exams for eyes, glycoslyated hemoglobin, proteinuria, and lipids in diabetic patients.

MetaStar's quality improvement expertise is available to assist organizations with advice on sampling, data collection and abstraction methods/methodologies, on intervention strategies, and on statistical and analytic techniques. We are proficient in and easily able to share quality improvement methodology, standardized tools, educational materials, comparative data, and information on best practices.

Lynn Sherman

From the Office of General Counsel

Patients and E-Mail: Technology Means Increased Confidentiality Concerns

By Lynn Sherman, SMS Senior Policy Analyst, and Mark Adams, JD, SMS General Counsel

After seeing her physician for a minor injury, a patient realizes that she has one more question to ask about the prescribed medications. Does she have to spend the rest of the day playing telephone tag with the physician, creating more work for office staff, or can she e-mail the physician directly to get the answer?

In the age of electronic communications, more and more people are using electronic mail (e-mail) to communicate with businesses, friends and family. By the year 2000, there will be 100 million e-mail users nationwide.[1] It appears, however, that Wisconsin physicians are reflective of the national trend, in which only 1 percent to 2 percent of all US physicians regularly use e-mail to communicate with their patients, according to the American Medical Association.

Confidentiality of the patient's medical information is the most obvious risk associated with using Internet technology. Anecdotal evidence indicates that many messages are misdirected and may wind up going to an incorrect recipient. In addition, patients may have Internet access at their place of employment and co-workers or supervisors could have access directly or indirectly to their incoming messages. Even if e-mail is received at home, the patient's spouse or children may have access to the incoming message.

Electronic communication with patients has the potential to improve the speed, convenience and access to medical care. Having a patient's concerns and a physician's response in writing provides a good record for the physician and can improve the clarity of medical information for patients.[2] In addition to confidentiality concerns, physicians should be aware that there are malpractice implications when using this technology, particularly when a physician recommends treatment or prescribes medications without former face-to-face contact with the patient.

The AMA House of Delegates will be considering a report on Internet prescribing at the June 1999 Annual Meeting. (For a copy of the AMA report contact Bruce Blehart, JD, at the AMA at 312-464-5000.)

In general, the State Medical Society Office of General Counsel does not recommend communicating confidential information to patients using e-mail. This includes communicating test results or specific diagnoses. Other information, including patient education materials, appointment reminders or more general information may be more appropriate for electronic mail communications.

If a patient requests that medical information be communicated using e-mail and the physician wants to make himself or herself available to patients using this technology, several recommendations should be considered.

- Obtain informed consent from the patient to communicate with him or her via e-mail. Clarification of what types of information the patient wants communicated should be requested.
- Consider including a disclaimer statement at the end of each message that excludes a physician or clinic's liability if the message is mistakenly misdirected. The statement will also clarify to the patient that once the information leaves the physician's office via the Internet, the security of the information cannot necessarily be maintained.
- Clinics that use the Internet, including e-mail, extensively may want to invest in encryption software that can greatly increase (but not guarantee) security of the patient information. Encryption technology is improving and will, in the next few years, become more widely available.
- Print out a copy of the e-mail exchange and place it in the patient's medical record for future reference.
- Avoid being casual or sarcastic in a response to a patient's inquiry. A joke or a negative comment toward a third party could be taken as being unprofessional and could reflect poorly on your practice.
- Have a mechanism in place to acknowledge receipt of the patient's message. Most e-mail software packages can be set to send an automatic reply to all incoming messages. Patients

could be asked to do the same to ensure that the physician's message is properly received.

- Always double-check the patient's e-mail address before sending a message.

Conclusion

This article has touched on some of the considerations when using electronic mail technology and has provided a few specific recommendations. For more information on this subject see "Guidelines for the Clinical Use of Electronic Mail with Patients," published in the Jan/Feb 1998 *Journal of the American Medical Informatics Association*, contact the American Medical Association or contact Lynn Sherman, Senior Policy Analyst, or Mark Adams, General Counsel, at the State Medical Society, 800-362-9080.

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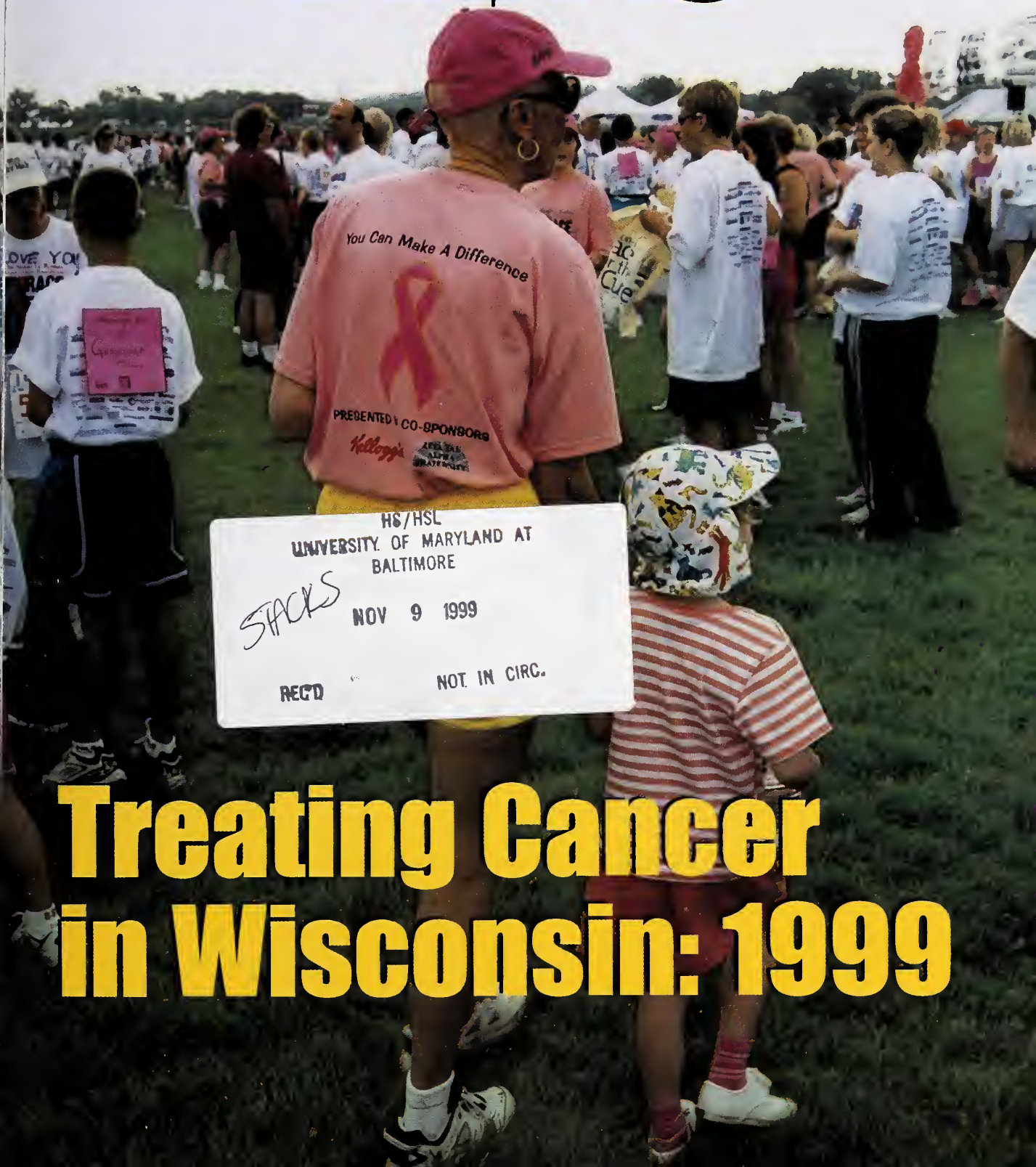
July/August 1999



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Kenneth T. Bastin, MD

Editorial

Wisconsin Medical Journal Tackles Cancer

by Kenneth T. Bastin, WMJ *Guest Medical Editor*

Cancer collectively represents a spectrum of malignant neoplastic diseases that will be diagnosed in more than 1 million Americans this year, claiming the lives of hundreds of thousands of patients, and affecting innumerable family members and friends. Nearly one-quarter of all American deaths will be attributed to cancer, ranking second only to cardiovascular diseases. **The National Cancer Institute has calculated a 46% lifetime risk for cancer in American males; among females the risk is 38%.** In Wisconsin, nearly 25,000 patients will be diagnosed with cancer in 1999, and over 10,000 will die from their disease.

The *WMJ* Editorial Board clearly recognized the importance of this public health concern and dedicated this issue to cancer in Wisconsin. Much information in this issue of the *WMJ* contains cancer data unique to Wisconsin, and to be found nowhere else.

In "*Cancer Trends in Wisconsin: 1988 to 1996*" data is presented from the American Cancer Society (ACS) and the Wisconsin Cancer Reporting System. In the time frame reviewed, age-adjusted incidence of cancer in Wisconsin rose 20%; fortunately, in the same time period mortality dropped 8%. The most frequent cancer diagnoses, not surprisingly, included prostate, breast, lung and colorectal — collectively representing more than half of all Wisconsin cancer diagnoses. Mary Foote, epidemiologist from the Wisconsin Department of Health and Family Services, succinctly describes the Wisconsin Cancer Reporting System, which is used to define cancer incidence and mortality in our state.

Breast cancer receives a major focus in this issue of the *WMJ*, paralleling society's heightened concern with this disease — and the medical communities' emphasis on earlier disease detection and treatment. Gale Johnson et al reviews the Wisconsin Women's Cancer Control Program, which targets low-income women for early detection of breast and cervical cancer. And UW-Madison graduate student Tamara Cherney presents Wisconsin's breast cancer mortality data from 1979 to 1996. This data shows that **since 1990, breast cancer mortality rates have dropped 3.4% per year.** Reasons for this reduction are not clear, but may reflect earlier diagnosis and/or possibly more successful treatment.

Breast conservation is an important theme for breast cancer. Doctor Linda Gemer presents an outstanding paper entitled "*Breast Conservation Therapy for Breast Cancer Treatment in Brown County.*" This study shows that between 1991 and 1996 breast-conserving therapy rose from 29% to 38% among conservation-eligible patients in Green Bay. In her study, survey results show that the patient's decision to pursue breast conservation vs. mastectomy is most strongly influenced by the surgeon's recommendation. Doctor Wendy Mikkelson describes the techniques and indications for *Sentinel Lymph Node Biopsy in Patients with Breast Cancer.* This evolving surgical procedure may supplant extensive axillary dissection in select breast cancer patients, and may make breast surgery less morbid without sacrificing diagnostic information.

Prostate cancer will be diagnosed in approximately 3,500 Wisconsin men this year. Urologist Mark Waples, MD, provides an update on prostate cancer, which defines the challenges and controversies in prostate cancer diagnosis and treatment.

Minesh Mehta, MD, provides an outstanding summary in *The Management Trends for Lung Cancer.*" Treatment of small cell and non-small cell lung cancer are well summarized in Table 1 of his paper.

Finally, Dr. Andy Anderson, Chair of the ACS Colorectal Task Force, overviews the Guidelines for Colorectal Cancer in 1999. The Screening and Surveillance Table accompanying this report should aid every primary care physician in selecting which patients might benefit from colorectal cancer screening, based on their age and known predisposing cancer risk factors.

Closing on an optimistic note, **cancer mortality in Wisconsin is lower than the national average** — which hopefully reflects above-average care that we render to our patients. We must continue to strive for ever-improving cancer management results to better prepare for an anticipated increase in the number of Wisconsin cancer patients, whose expectations for successful treatment will undoubtedly increase as well.

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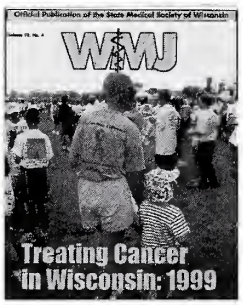

COVER THEME
CANCER IN WISCONSIN

In Wisconsin this year, nearly 25,000 patients will be diagnosed with cancer, and over 10,000 will die from their disease.

Meanwhile, events across the state, such as Madison's annual Race for the Cure, bring together thousands of Wisconsin residents to offer support, increase awareness and generate research dollars. They're doing what they can to make a difference.

This issue of WMJ *examines Wisconsin cancer trends and treatments. For their patients battling cancer, physicians make a difference too.*

Cover photo courtesy of Race for the Cure, Madison. Cover design by Kendi Parvin, *WMJ* Managing Editor

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The cover letter must also designate one author as correspondent and provide a complete address and telephone and fax numbers. All coauthors should have contributed to the study and manuscript preparation. They should be thoroughly familiar with the substance of the final manuscript and be able to defend its conclusions. Brief biographical information is needed for each author.

WMJ expects authors to disclose any commercial associations that might pose a conflict of interest in connection with the submitted article. All funding sources supporting the work should be routinely acknowledged on the title pages, as should all institutional or corporate affiliations of the authors.

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All manuscripts will be edited by the *WMJ* staff for clarity, organization, grammar, spelling, and punctuation, and in accordance with AMA style (*AMA Manual of Style*, 8th ed, and *AMA Manual for Authors and Editors*). Suggestions for titles are welcome, but are subject to the constraints of clarity, space, grammar and style.

The author will be asked to review a galley proof prior to publication to verify statements of fact. Galley proofs are for correcting minor and typographical errors only. Revisions in the paper are not possible at this stage and should have been made prior to final acceptance of the paper.

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  Methods-Describe the selection of observational or experimental subjects, including controls. Identify the methods, procedures and equipment well enough to allow replication.
  Results-Provide results in the test, tables or illustrations. If tables or illustrations are used, emphasize or summarize only the most important observations in the text.
  Discussion-Discuss the conclusions that follow from the results, as well as their limitations and relations to other studies. Show how the conclusions relate to the purpose of the study. Recommendations, when appropriate, may be included.
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Review Process

Each scientific manuscript is reviewed by the medical editor and the members of the editorial board. The opinions of outside consultants may be sought at the medical editor's discretion. The medical editor has the final decision as to whether a scientific paper will be published.

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The Editorial Board will be pleased to consider publication of brief conference reports. The following ground rules will apply:

1. Only reports of single-topic conferences held in Wisconsin will be considered.
2. The topic of the conference should have interest for a wide group of Wisconsin physicians who would have liked to attend, but the priority was not high enough, e.g., Alzheimer's Disease, AIDS.
3. The author should be the conference chair (or designee).
4. The report should focus primarily on what is "new and important" that can and should be used by the reader.
5. BRIEF is defined as six pages, double-spaced typing. In addition, the author may provide a one-page, double-spaced background statement as to why the content of the report is important for Wisconsin physicians.
6. The conference brochure should accompany the report. It will not be published.

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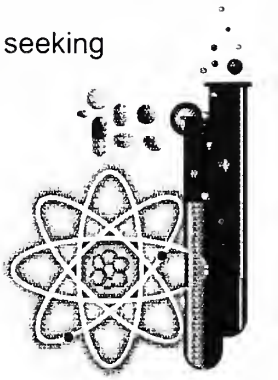

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- Maternal & Child Health

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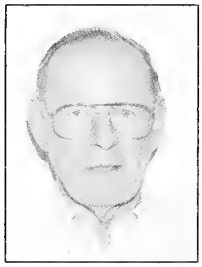
All submissions should conform to *WMJ* requirements. A three-month lead time is usually necessary. For further information contact **Kendi Parvin, SMS, P.O. Box 1109, Madison, WI 53701-1109, 608/257-6781, toll-free at 800/362-9080, or via e-mail at: KENDIP@smswi.org.** Instructions to authors may also be found on WISMED, the SMS World Wide Web site, at: www.wismed.com.



John Robert Guy, MD

Physician Citizen of the Year

Citizen, Doctor of the World Helps Medically Under-Served

by Steve Busalacchi, Director, News & Information

A trip to the former Soviet Union in 1990 was an eye-opening experience for **John Robert Guy, MD**, of Waukesha. Since then, he's been sending medical supplies back there and even welcomed a Kazakhstan woman into his home last summer while she underwent chemotherapy for breast cancer.

"You see what they don't have compared to what we have...you have to give them a hand," Dr. Guy says plainly. Such empathy and many acts of generosity make the retired pediatrician a worthy recipient of the SMS Physician Citizen of the Year Award. Based on nominations from the public, the SMS selects up to eight winners from various medical society districts in the state. The award honors dedicated physicians like Dr. Guy for the uncompensated civic, cultural, economic and charitable services they have provided to their local or state communities.

"John has played an active role in the Sister City Organization of Waukesha," wrote SMS members Gene Betlach, MD, and Dorothy W. Betlach, MD, of Janesville, in their nomination letter. "Over a four-year period, the group gathered medical supplies and shipped them to the sister city, Kochatau, Kazakhstan."

Doctor Guy and other volunteers traveled around Wisconsin to pick-up outdated (1962), but unused supplies and instruments from hospitals to deliver them to Kazakhstan. He wasn't sure what the physicians in Kazakhstan would think of such old supplies, but they definitely were grateful for them. Doctor Guy recalls one local physician saying: 'Our instruments are from 1962 too, but they don't work because they've been used every day since.'

> *"You see what they don't have compared to what we have . . . You have to give them a hand."*
>
> **John Robert Guy, MD**

In terms of medical equipment and hospital facilities, Kazakhstan was operating at a 1950s level, according to Dr. Guy. And life outside of hospitals isn't any better. During a second trip to Kazakhstan, Dr. Guy visited a sick girl who was living in a one-room apartment with three other family members. He recalls walking down a dark hallway, where the light bulbs were either missing or burned out.

"You see that the place was falling apart around them. You feel sorry that they have to live that way," Dr. Guy said. Fortunately, the child was not seriously ill, and Dr. Guy joked with her parents that it was "the longest house call I've ever made—12,000 miles."

But this was not the last contact Dr. Guy and his wife Molly would have with the family.

"On his own this past summer, John raised $1,500 in private donations for transportation costs and he brought over from Kazakhstan a 36-year old physician for chemotherapy of her breast cancer," wrote the Betlachs in their nomination letter. That physician, an OB/GYN, is the mother of the sick child he had visited in the run-down apartment. There is no chemotherapy in Kazakhstan, and Dr. Guy was determined to help this woman fight her cancer. The physician-patient stayed in the Guys' home until she recovered enough four months later to return to her family in the former Soviet Union.

Now, Dr. Guy is working to help Kazakhstan children who have congenital heart disease by arranging surgeries here in the United States.

"So far, we've brought about five or six kids over—that's rewarding. It can be corrected," he states.

But this retired Guy doesn't limit his works to faraway places. In his own backyard of Waukesha, he works at a pediatric free clinic twice a month at St. Joseph Church. He knows most of the physicians in town and can refer patients to a colleague if they need hospitalization.

He says his physician friends have always been willing to help—something that seems to come quite naturally to Dr. John Robert Guy.

AMA Awards

The SMS member physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations.

Hussamaddin Al-Khadour, MD
Ellen Mattes Barbouche, MD
Steven A. Bernstein, MD
Elizabeth A. Bisinov, MD
Sigurdur Bodvarsson, MD
Stephen R. Buksh, MD
Larry V. Carson, MD
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Kari L. Steffen, MD
Kristin Anne Steffen, MD
Jake S. Vacarella, MD
Amy K. Wermeling, MD
Michael C. Zacharisen, MD

Who's in the News

Daniel M. Albert, MD, and **Matthew D. Davis, MD,** were recently recognized for outstanding research. Both are faculty members in the University of Wisconsin Medical School's Department of Opthalmology and Visual Sciences.

Doctor Albert, professor and department chair, earned a new named professorship, the Lorenz E. Zimmerman Professorship, supported by the Wisconsin Alumni Research Foundation/University Houses.

Doctor Davis, emeritus professor, received the Alcon Research Institute Award in recognition of outstanding vision research.

Michael J. Dunn, MD, dean and executive vice president of the Medical College of Wisconsin, was one of 15 scholars elected to membership in the John Hopkins Society of Scholars.

Maureen Murphy-Greenwood, MD, of the Dells Clinic, **James Mathers, MD**, of Baraboo, and **Brian Lochen, MD,** of the Reedsburg Area Medical Center were among the 13-member team making a third medical mission to Haiti in March.

Paul Liss, MD, was named the Chief Medical Officer at Marshfield Clinic.

Jeffrey C. Lynds, MD, of Sheboygan, was named the Elks Lodge #299 "Citizen of the Year" for his involvement with the Salvation Army Health Care Clinic where he is medical director.

Lyle Olson, MD, of Darlington, was selected as honorary chairman for the Lafayette County "Relay For Life," which was held at the Lafayette County Fairgrounds, Darlington. The Relay For Life is the American Cancer Society's national signature event.

Gerald Porter, MD, received the Marshfield's Rotary Service Above Self Award for his work in medical practice and community service.

William Scorby, MD, of Gunderson Lutheran Medical Center in La Crosse, was selected to the 1999 Class of Fellows and Masters in the American College of Occupational and Environmental Medicine.

Sidney Shindell, MD, of Milwaukee, was presented the President's Award from the American College of Occupational and Environmental Medicine for his long-term relationship as a mentor and colleague concerned with the advancement of occupational medicine.

Waukesha-based cardiologist **Sanjay Singh, MD,** and his wife, **Shaila Singh, MD**, a family practice physician, are serving as the 1999 co-chairs for the American Heart Association's Celebrity Celebration, the biggest annual fund-raising effort of the American Heart Association-Waukesha County Division.

Welcome New Members

The individuals listed below were recently elected to SMS membership by their County Medical Societies. We are pleased to welcome them to the SMS.

Brown
Jon Marc Brandt, MD
Thomas Leo Cain, MD
Mohammed Reza Jazayeri, MD
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In Remembrance

Brown, Joseph G., MD, 75, of Monona, passed away May 14, 1999. He earned his medical degree from New York University Medical School and the University of Wisconsin. After serving in the US Army during World War II and the Korean Conflict, he established a family practice in Cambria. In 1962 he returned to a psychiatry residency at the University of Wisconsin and practiced in Madison until his retirement in 1987.

Doctor Brown is survived by his wife, Peg; his children, Deborah (Chris) Michie, of Fairfax, CA; Dana (Dr. Daniel) Graff, of Sewickley, PA; Melissa Brown, of Verona; and Penelope (Alan) Horobin, of Forestville, CA; and his five grandchildren, Claire Michie, Sarah and Fiona Graff, Forrest and Miles Horobin.

Burzynski, Eugene E., MD, 87, of Watertown, passed away May 21, 1999. He earned his medical degree from Marquette Medical School, interned at Milwaukee Passavant Hospital and served his residency at Milwaukee County Hospital. He served as a general practitioner in Laona for two years before entering the service as a Navy flight surgeon in World War II, serving in the Pacific Theater. Upon his discharge, he set up his ophthalmology practice in Watertown from which he retired in 1981. Doctor Burzynski was a member of the Jefferson County Medical Society and a member of the 1987 SMS 50 Year Club.

Doctor Burzynski is survived by his children, Gretchen (Guy) Scott, of Weston, MA; Peter (Sue), of Newburgh, IN; and stepdaughter Patricia Stevens, of Madison, WI; and six grandchildren.

Docter, John C., MD, 108, of Plum City, passed away May 28, 1999. He earned his medical degree from Marquette University, Milwaukee, and completed his internship at Northern Pacific Hospital, Missoula, MT. He practiced medicine in Missoula and Phillipsburg, MT, where he made house calls on horseback, and was the county health officer.

Doctor Docter was a veteran of World War I, serving in the US Army Medical Corps. In 1921, he left Montana and took post-graduate courses at Harvard University and at St. Louis University, studying pediatrics. He then practiced medicine in Racine for 50 years and was known for his breadmaking. A loaf of Doctor Docter's "Health Bread" was given along with the recipe to mothers during the Depression to help counter malnutrition then common in children. He then moved to Plum City to practice medicine with his son and practiced there until his retirement in 1986.

Doctor Docter was a member of the 1964 SMS 50 Year Club and was granted Life Membership in the SMS in 1973. He was a member of President Herbert Hoover's Committee on Children's Health in Washington, DC, the American Legion, World War I, and the Marquette Alumni Association. He spent 30 years on the Board of Directors of the Racine Cemetery Commission, was a founding member of the Racine Optimist Club and belonged to other organizations involved in children's issues including the YMCA, Boys Town, and Indian schools in Montana. In 1998 he was awarded a new diploma from the Medical College of Wisconsin (formerly Marquette University School of Medicine); he was the oldest living alumni from the college.

Doctor Docter is survived by his children, John, of Thornton, CO; and Joanne Grippentrog, of Los Angeles, CA; 15 grandchildren, 17 great grandchildren and six great-great grandchildren.

Geldner, Michael M., MD, 76, of Redgranite, passed away May 15, 1999. He received his medical degree in neurosurgery at the University of Warsaw Medical School in 1951, and came to the United States in 1963 as a Research Fellow at New York University. He was in private practice briefly at Monroe, WI, before settling in Neenah in 1966 where he practiced until his retirement in 1988. Doctor Geldner was an active member of national and local medical and neurological societies, chief of the medical staff and chairman of the Department of Surgery at Theda Clark Regional Medical Center, and staff member at Appleton Medical Center, St. Elizabeth Hospital in Appleton and Mercy Medical Center in Oshkosh.

Doctor Geldner is survived by his wife, Dr. Barbara Geldner; his children, Dr. Peter (JuliAnn), of River Forest, IL; Dr. Joanna (Alan) Geldner Silverman, of Palm Springs, CA; and his grandchildren, Nathan and Aaron Geldner and Michael and Samantha Silverman.

Hammer, Roland M., 70, of River Falls, passed away June 5, 1999. He earned his medical degree from the University of Minnesota, Minneapolis and completed his internship at Harbor General Hospital, Torrance, CA.

Doctor Hammer served in the US Army. He practiced at the River Falls Medical Clinic for 40 years. He received a Bush Clinical Fellowship in 1982, which he used to study subjects in clinical medicine and administration. Doctor

Hammer was a member of the MORP – Low Back Pain Study Group, Nursing Home Administration Examining Board, American Academy of Family Physicians, Pierce-St. Croix County Medical Society and medical director of Kinnic Long Term Care since 1992. He also wrote a book, *Before You Call the Doctor.*

Doctor Hammer is survived by his wife, Marian; his children, Margaret and Jorgen Kappel Hansen of Starup, Denmark; Mark and Judith of River Falls; and Joe and Shari of Stillwater, MN; and his grandchildren, Sophia, Niels, Anna, Bobbi Ann, Ashley, Thomas, and Joseph.

Hill, George L., MD, 46, of Marshfield, passed away April 20, 1999. He received his medical degree from the University of Oklahoma, both in Oklahoma City and in Tulsa where he completed his third and fourth years. After completing his residency in Tulsa, he joined the Marshfield Clinic in the Obstetrics and Gynecology Department in 1982.

Doctor Hill was active in the Boy Scouts, obtaining the Eagle Scout Award, God and Country religious award, the Order of the Arrow obtaining the Vigil Honor award and was a member of the Order of DeMoley. He was a member of the Wisconsin College of Obstetrics and Gynecology, the American College of Obstetrics and Gynecology, the American Medical Association, the Bartlesville Masonic Lodge 288, and was a 32 degree Mason.

Doctor Hill is survived by his wife, Linda; his children, Christopher Clay, Zachary John, Allistair Elizabeth, and Verity Jane; and his mother, Evelyn Hill, of Bartlesville, OK.

Ingwell, Clayton L., MD, 91, of Madison, passed away May 31, 1999. He earned his medical degree from Tufts Medical College in Boston, MA, and completed his internship at Madison General Hospital.

Doctor Ingwell served as Captain with the US Army Medical Corps of the 71st Infantry Division, a combat unit that fought in France, Germany and Austria. He practiced medicine for 42 years in Deerfield until his retirement in 1978. He was awarded the Distinguished Citizen citation from the Deerfield Lion's Club for his years of service to the community and was a member of the 1986 SMS Fifty Year Club.

Doctor Ingwell is survived by his wife, Fern; his children, Steven (Cynthia), of Burlington; Marcia (Richard) Faulmann, of Mead, CO; and Rhonda (Curtis) Mork, of Madison; his grandchildren, Brian, Jonathan, David, Corinne, Kari and Sarah; and great-grandson, Robert.

Job, Edward J., MD, 64, of Janesville, passed away May 22, 1999. He earned his medical degree from Loyola University-Stritch School of Medicine in 1959, and completed his residency at St. Joseph Hospital, Chicago in 1963. He served as a Captain in the US Air Force from 1963 to 1965.

Doctor Job practiced in Chicago prior to joining the staff of the Janesville Medical Center as an obstetrician and gynecologist. He was a member of the Wisconsin Society of Obstetricians, American College of Obstetricians and Gynecologists, and the Rock County Medical Society. He also volunteered at Health Net.

Doctor Job is survived by his wife, Veronica; his children, Christine (Richard) Lane, of Bayside; Cynthia and Alison, of Chicago; Steven, of Janesville; Linda (Philip) Stringer, of Mendota Heights, MN; Sarah Madden Job, of Janesville; and his grandchildren, Nicholas and Catherine Lane, and McNeil Stringer.

Lavine, Israel H., MD, 92, of Superior, passed away April 21, 1999. He earned his medical degree from the University of Wisconsin and completed his internship at Mt. Sinai, Milwaukee. He was in private practice in Melrose for 20 years. In 1956 he returned to Superior and joined his brother, Dr. Max Lavine, in private practice. Together with a group of local doctors, they founded the Superior Clinic in 1965. He retired from practice in 1987. Doctor Lavine was one of the leaders in building the new Temple Beth El in Superior.

Doctor Lavine is survived by his children, Sharon (Daniel) Mosenkis, of Fairlawn, NJ; Susan Lavine (John) Coleman, of Cambridge, MA; Steven (Janet Sternburg Lavine), of Encino, CA; and four grandchildren.

Mueller, Joseph J., MD, 79, of Milwaukee, passed away March 10, 1999. He earned his medical degree from Marquette Medical School, Milwaukee and completed his internship at Milwaukee Hospital. His residency in general practice and surgery were completed at St. Luke's Hospital and Milwaukee County General Hospital.

Doctor Mueller served in the US Army from 1940 to 1943. He was Professor of Surgery at Marquette University, served as Chief of Surgery at several local hospitals, and was a member of the 1998 SMS 50 Year Club.

Doctor Mueller is survived by his children, Suzanne (William) Lennon, Judy Mueller, Thomas (Faye) Mueller, Jerome (Sue) Mueller, John (Michele) Mueller, and Mary Mueller; 12 grandchildren and one great-granddaughter.

Murphy, Paul W., MD, 79, of Chippewa Falls, passed away May 15, 1999.

He was a veteran of World War II, having served in the Field Artillery of the 32nd Division in 1940 and again from 1942 to 1944. He taught and was on the faculty of the US Army Field Artillery School in Lawton, OK. He also served in the European theater as a Captain in General Patton's 3rd Army from April 1944 to November 1945. He earned his medical degree from Marquette University, Milwaukee in 1950 and completed his internship at the Youngstown Hospital Association in Ohio.

Doctor Murphy practiced family medicine in Bloomer from 1951 to 1979 and emergency medicine at St. Joseph's Hospital in Chippewa Falls from 1979 to 1986.

Doctor Murphy is survived by his brothers, John, of Arlington Heights, IL; and James (Karen), of Omaha, NE; his sister, Marilyn (Thomas) Sullivan, of West Bend; and nieces and nephews.

Nienhuis, Herman D., MD, 65, of Janesville, passed away April 9, 1999. He earned his medical degree from the University of Michigan, Ann Arbor and completed his internship and residency in obstetrics/gynecology at Blodgett-Butterworth Hospital, Grand Rapids, MI.

He served as a flight surgeon in the US Air Force, attaining the rank of Captain and received a commendation medal for his service. In 1964 he started his practice in Janesville and served the community for 27 years, delivering over 6,000 babies in his career. Doctor Nienhuis was a member of the American College of Obstetrics and Gynecology, Cargill United Methodist Church, Kiwanis, Rock River Thresheree, and the American Legion.

Doctor Nienhuis is survived by his wife, Nancy; his children, David (Deb) Nienhuis, MD, of Brookfield; Daniel (Marie) Nienhuis, of Elm Grove; Sarah (Jim) Hodge, of Elm Grove; and six grandchildren.

Racadio, Freddy S., MD, 52, of Wauwatosa, passed away April 8, 1999. He earned his medical degree from the University of Santo Tomas in Manila, and completed his internship and residency in general surgery at Mt. Sinai Medical Center in 1978. Doctor Racadio specialized in vascular and laser surgery and was among the first physicians in the state to perform laser surgery for anorectal diseases. He was a three-term Chief of Surgery at Sinai Samaritan Medical Center and member of the American College of Surgeons.

Doctor Racadio is survived by his wife, Elma; and his daughters, Michele, of Washington, DC; Racquel, of Madison; and Mae and Ricca, both of Wauwatosa.

Worman, Leonard W., 73, of Milwaukee, passed away June 21, 1999. He earned his medical degree from Stritch School of Medicine, Loyola University and completed his internship and residency at Milwaukee County General Hospital. He dedicated his life to helping and healing others in his medical and teaching career at the Medical College of Wisconsin, Milwaukee County Medical Complex and Milwaukee Psychiatric Hospital. His body was donated to the Medical College of Wisconsin. There is a scholarship fund set up by the family and donations can be sent to the Dr. Leonard Worman Scholarship Fund, c/o Firstar Bank, 5220 West North Avenue, Milwaukee, WI 53208.

Doctor Worman is survived by his children, Chris, David, Geoff, Stephen, Jeanne, Eileen, Elise, Matthew, Becky, Daniel and Paul; and eight grandchildren.

Wright, Lewis Elden, MD, 55, of Racine, passed away April 11, 1999. He earned his medical degree from Indiana University, Indianapolis, IN, and served his internship at the Philadelphia Naval Regional Medical Center where he received recognition for "Intern of the Year." Doctor Wright served as Chief Naval Officer aboard the U.S.S. Grand Canyon from 1970 to 1971 and worked at the Philadelphia Naval Regional Medical Center. Doctor Wright joined the Kurten Medical Group in 1977, where he remained with All Saints Medical Group until his illness in 1997.

Doctor Wright is survived by his wife, Ann; his children, Jason (Susan Longo), of Washington, DC; and Jeremy (Megan) Colewright, of Bronx, NY.

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Guest Editorial

You're My Father, Not My Patient

by Eric C. Westman, MD, MHS, and Jack C. Westman, MD

FATHER: Hi, son, how's the general internist in the family?

SON: Hi, Dad, what's new with you–the child psychiatrist in the family?

FATHER: A colleague of mine died recently from a ruptured aortic aneurysm. He died at home in a chair, and was found two days later.

SON: How do you know that it was an aneurysm and not a heart attack?

FATHER: His aneurysm had been diagnosed, but it ruptured before the operation.

SON: That's too bad.

FATHER: My neighbor also recently had an aneurysm repair, and so did your father-in-law. I was wondering if I might have an aneurysm.

SON: Have you had any symptoms that might suggest an aneurysm, like sharp abdominal pains radiating through to your back?

FATHER: No, but aren't most aneurysms asymptomatic in the early stages?

SON: Yes, having no symptoms doesn't exclude the possibility that you have one. You had your physical exam this year didn't you? Did your doctor feel your abdomen for an aneurysm? And listen for a bruit?

FATHER: I think so. But how certain can my doctor be that I don't have an aneurysm from the history and physical alone?

SON: Not very certain. A physical examination can detect only about 50% of aortic aneurysms. After a physical examination, your risk of having an aneurysm is still about the baseline risk of an aneurysm in your age group, about 1 in 100.

FATHER: That sounds low, I guess. But let's think about this a minute. There are about 30,000 people over the age of 60 here in my city. If aneurysms occur in about 1 in 100 people over 60, there will be 300 people walking around here with undiagnosed aneurysms. Can that be right?

SON: That's what the numbers say.

FATHER: What if I am one of those 300?

SON: You can be 99% sure that you won't be. How sure do you want to be?

FATHER: I want to be 100% sure. Aren't there any other tests that can be done safely? We've put men on the moon and examined the rings of Jupiter. Certainly you can tell me what's inside my body—whether I have an aortic aneurysm or not.

SON: You could undergo an ultrasound, CT, or MRI of the aorta.

FATHER: How reliable are these tests for detecting aneurysms?

SON: Because you are not overweight, these tests would tell you definitively.

FATHER: So I can be certain whether I have or do not have an aneurysm by having an abdominal ultrasound.

SON: Yes . . . but it's not standard practice to screen for aortic aneurysms with ultrasounds in someone at low risk like you. If you had other peripheral vascular disease, screening might be indicated.

FATHER: Why not? I don't want to be one of the 300 in my town who will have an aneurysm go undetected. I want to know for sure.

SON: But you may have a false positive test because your risk of an aneurysm is so low.

FATHER: What would happen if I were a false positive?

SON: You would have to needlessly undergo an angiogram, and take the risks of bleeding, infection, and an allergic reaction.

FATHER: How likely are those risks?

SON: Your chance of a life-threatening reaction is probably less than 1 in 100,000. The risks of bleeding and infection are more common, but not life-threatening.

Eric C. Westman, MD, MHS, is affiliated with Center for Health Services Research in Primary Care, Durham Veterans Affairs Medical Center, Department of Medicine, Division of General Internal Medicine, Duke University, Durham, North Carolina. Jack C. Westman, MD, is affiliated with Department of Psychiatry, University of Wisconsin, Madison, Wisconsin.

FATHER: I would be willing to have an angiogram if necessary. I'd be relieved if it showed that there was no aneurysm.

SON: Yes, but if you had no aneurysm and you had a fatal reaction, that wouldn't be good.

FATHER: Yes, but didn't you just tell me that the chances of a life-threatening reaction were far lower than my chances of having a life-threatening aneurysm? I want the ultrasound test.

SON: It's not the standard of care. And it costs several hundred dollars. Your insurance probably won't pay for it.

FATHER: That's OK. I pay that much to maintain my car every year. I think I'm worth more than my car.

SON: But I don't know how often you should get an ultrasound.

FATHER: Can't that be determined by what the findings show? Can't we take it one step at a time?

SON: Yes, but. . .

FATHER: You know, I would pay even more than that in order to be certain that I didn't have a disease that is undetectable by a physical examination, but potentially curable. I had a screening colonoscopy this year, and my insurance company paid for it. Why wouldn't insurance companies want to do everything they can to reduce major medical costs?

SON: There's scientific evidence to support the use of colonoscopy for screening—that's why it was paid for by your insurance company. There's little proof that any of these other tests prevent illness or prolong life.

FATHER: Wait a minute. You're telling me that there's no proof that getting an abdominal ultrasound will benefit me.

SON: Right.

FATHER: It surely would if an aneurysm is found and corrected before it ruptures! If an aneurysm isn't found, then all I will be out is the money or the risks of the angiogram if the ultrasound is falsely positive. It's worth it to me.

SON: But you might actually be harmed because of a false positive test.

FATHER: It's my body, if I'm willing to take the risk, why wouldn't you let me?

SON: I'm not sure that you're fully informed. One reason you go to your physician is for an opinion that integrates all of this information. I'd rather wait until ongoing research gives us better answers.

FATHER: Yes, but I can't wait, I need an answer now.

SON: There are limited resources to pay for these services.

FATHER: But I'll pay for the test myself.

SON: But there's no proof it will help!

FATHER: But is there proof that it will not help?

SON: What do you mean?

FATHER: Absence of proof that it helps does not prove that it doesn't help! I could say that you must prove that it doesn't help before you deny me the opportunity to have the test. If my health was your primary concern and screening could find a reparable aneurysm, then you should do the screening test.

Aren't you really saying that there is no proof that the cost of the test is justified by the likelihood of an aneurysm?

SON: Everyone is trying to reduce health care costs. We must balance our responsibility to the individual patient with the stewardship of scarce resources.

FATHER: Aren't you overlooking the possibility that mass production can reduce costs? Haven't the costs of computers and electronic equipment come down? Why can't we expect that large-scale screening could make automated examinations economically feasible? Think of the lives and money that would be saved from the early detection of diseases.

SON: But the pressure to improve medical technology is to provide better images. The machines aren't getting cheaper, they're getting more expensive. But, I suppose it's like when you asked me about what kind of computer to buy several years ago. Even though many people wanted you to buy the most expensive computer, I told you to buy one that was good enough to run your word processor program because that's mostly why you use your computer. You didn't need an expensive high tech computer to use as a word processor.

FATHER: Yes, I remember. Don't you think that sometime in the future medical technology will devise an inexpensive automated screening battery to supplement the routine physical examination? Shouldn't we be working on that now so that it will benefit you and your children? Why not mass produce moderately good CT scan machines and ultrasounds so that everyone over age 60 could get a screening exam. It may only need to be good enough to detect moderate-sized abnormalities. We have the technology to do total body CT scans and mammograms; ultrasound of the thyroid, gallbladder, kidney, bladder, uterus, ovaries, and prostate; echocardiography of the heart; and endoscopy of the stomach and colon.

SON: Let's take it one step further. What if we trained all medical students to be able to perform ultrasounds instead of using stethoscopes? What if students were trained to recognize normal ultrasounds instead of X-rays? If more physicians could perform and read these tests, the costs would come down dramatically.

FATHER: Enough of this hypothetical talk. What do you do with your patients in the meantime?

SON: I send my patients for an abdominal ultrasound if they have risk factors for an aneurysm.

FATHER: And what should I do?

SON: Dad, you should get the ultrasound.

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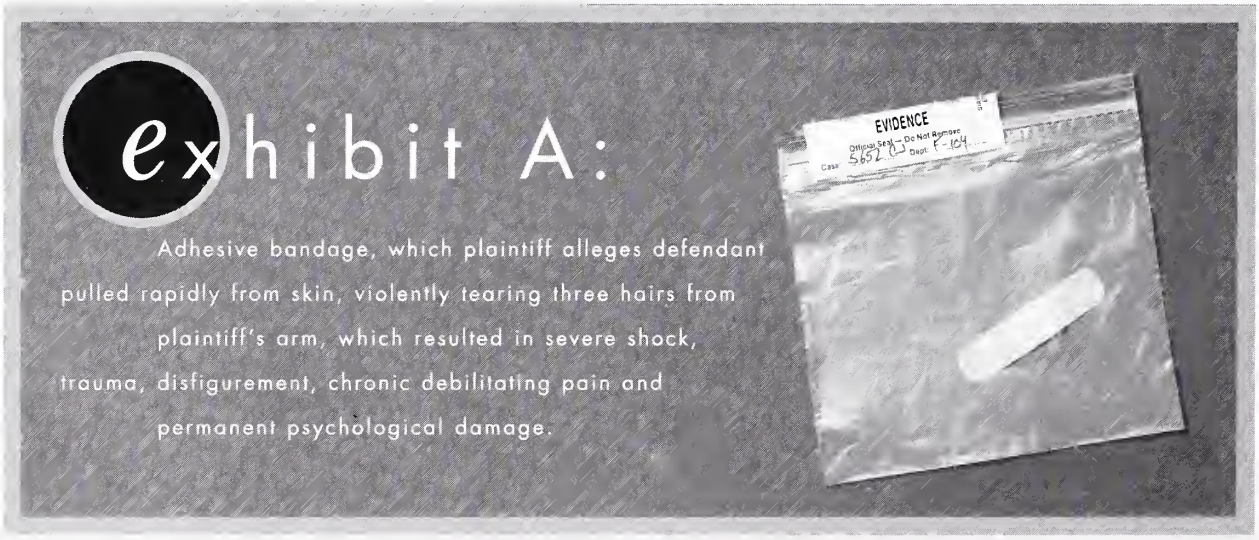

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Wisconsin Cancer Reporting System: A Population-Based Registry

by Mary Foote, MS

Introduction

In 1999, an estimated 10,400 Wisconsin residents will die from cancer. In Wisconsin, as in the United States overall, cancer is second only to heart disease as a cause of death. In addition, over 24,000 new cancers will be diagnosed in Wisconsin in 1999. The Wisconsin Cancer Reporting System (WCRS) is the state's population-based registry for cancer incidence data. Wisconsin hospitals, clinics, and physicians report all newly diagnosed cancer cases to WCRS. The Registry has collected information on new cancer cases statewide since 1978. Mortality data is derived from the Wisconsin Vital Records annual death file. In the most recent annual report, *Wisconsin Cancer Incidence and Mortality, 1996,* the registry made a general report to the public on the status of cancer in Wisconsin.

State and Federal Legislation

Cancer is a reportable disease as stated in Wisconsin State Statute 255.04, Cancer Reporting. In compliance with state law, hospitals, physicians and pathology laboratories must report all new cases of "reportable" cancer among Wisconsin residents to WCRS, part of the Bureau of Health Information, Department of Health and Family Services. All primary cancers except basal cell and squamous cell carcinoma of the skin are reportable cases. The Wisconsin Cancer Reporting Statute is posted at www.legis.state.wi.us/Statutes.html.

In 1994, WCRS was assisted by the Cancer Registries Amendment Act (Public Law 102-515), which established the National Program of Cancer Registries (NPCR). This authorized the Centers for Disease Control and Prevention to provide states the funds to improve existing cancer registries, to establish new cancer registries, and to set nationally uniform standards for data quality. The NPCR currently includes 45 states and the District of Columbia. More information about the NPCR is available at www.cdc.gov/nccdphp/dcpc.

Registry Objectives

WCRS is guided by statutory mandate to collect, manage, and analyze cancer data. An accurate and timely database supports the registry's goals to:

- gather and edit cancer data and report cancer incidence and mortality statistics for Wisconsin;
- provide information on changes over time in cancer statistics, extent of disease at diagnosis and treatment;
- respond to requests from individuals and organizations for aggregate cancer data and analyses;
- provide data for research activities and health care studies.

Publications currently available from WCRS include the annual *Wisconsin Cancer Incidence and Mortality, 1996* and *Health Counts in Wisconsin: Cancer 1996.* These reports are available on the WCRS web site at www.dhfs.state.wi.us/wcrs/pubs.htm. In addition, other reports such as the 1995 annual report and the special report, *Breast Cancer Information Summary* are also available on the web site. WCRS is preparing a trend report, Wisconsin Cancer Incidence and Mortality Trends, 1985-1996, and a special report, *Colorectal Cancer - What You Should Know*, for publication later this year. WCRS regularly contributes data to the North American Association of Central Cancer Registries (NAACCR) *Cancer in North America: Incidence and Mortality, Volumes I and II* and will prepare data for the forthcoming NAACCR public data file.

Data Collection

WCRS collects cancer incidence data on Wisconsin residents diagnosed with in situ *and* invasive cancers. Each reported cancer case includes the following information:

Demographic information - age, sex, race/ethnicity, and county of residence at time of diagnosis.

Tumor characteristics - date of diagnosis, primary site, cell type, stage of disease at diagnosis and type of diagnostic confirmation.

Treatment - cancer treatment including surgery, chemotherapy, radiotherapy, hormone therapy and immunotherapy.

Ms. Foote is epidemiologist/research associate for the Cancer Reporting System, Bureau of Health Information, Department of Health and Family Services. For reprints, contact Wisconsin Cancer Reporting System, 1 West Wilson Street, Rm. 172, PO Box 309, Madison, WI 53701-0309, (608) 266-0633.

Over 300 Wisconsin hospitals, clinics and physician offices currently report cancer cases to WCRS. Hospital's newly diagnosed and or/admitted cancer cases are reported within six months of patient contact. Physician offices and freestanding clinics should report (1) those cases they diagnose if not referred to a Wisconsin hospital for treatment within two months, and (2) all cancer cases they treat. Independent clinics and physicians are required to report new cancer cases within three months of patient contact. These cases from non-hospital sources accounted for over 2,000 cases in 1996 that were not reported by any other source. WCRS expects an increase in the number of cases from independent clinics and physicians to match the growing number of outpatient diagnostic and treatment options available for cancer patients. Data exchange agreements with 17 other state cancer registries yield case reports for Wisconsin residents receiving care in other states. Minnesota hospitals report Wisconsin resident cancer cases directly to WCRS.

WCRS checks the accuracy of incoming cancer data using nationally approved edits from the CDC and additional edits designed by WCRS. Any inconsistencies or errors are resolved with the reporting facility. Additional quality controls are achieved through the monitoring of case completeness and timeliness. Lastly, WCRS searches the Wisconsin death files to add mortality information for cancer patients previously reported and to identify cases from death certificates (with cancer as the underlying cause of death) not previously reported. Apparent unreported cancer cases result in queries from WCRS for additional information to the medical source listed on the death certificate. Death certificate cancer cases not completed with additional information are designated as 'DCO's (Death Certificate Only) and must be excluded from annual reports.

WCRS has received national recognition from NAACCR and was awarded 'Gold Standard' certification for data completeness and quality of both 1995 and 1996 cancer incidence data.

Wisconsin Cancer Reporting System

The WCRS began statewide operation in 1978 and now includes seven staff members: Laura Stephenson-Vine, Lead Analyst, Mary Foote, Epidemiologist, Bob Borchers, Quality Assurance Specialist, Linda Ramsden, Research Technician, Indiana Strombom, Special Projects Support, Diane Austin, Program Assistant, and Gary Ringstad, Computer Programmer.

The WCRS serves as a resource for the University of Wisconsin Comprehensive Cancer Center, Medical College of Wisconsin Cancer Center, Wisconsin Division of Public Health, Wisconsin Department of Health and Family Services and American Cancer Society, among others. The Wisconsin Cancer Council, representing 23 cancer organizations, provides invaluable assistance and support to WCRS.

Call to Cancer Facilities/ Physicians

A complete and accurate surveillance of all Wisconsin cancer incidence, specific cancer sites, stage at diagnosis and treatment is dependent on the timely participation of all cancer-oriented medical facilities in the state. By law all physicians are required to report new cancer cases to WCRS. Physicians/facility administrators not currently reporting cancer cases, or those interested in learning more about reporting requirements, should contact WCRS for further information about reporting guidelines including: (1) neoplasm report forms, (2) specific types of reportable cancer, and (3) the schedule by which reports should be submitted.

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The Wisconsin Women's Cancer Control Program: 1999 Update

by Gale Johnson, MA, Wendy Schell, MS, Sandy Park, John Shalkham, MA, SCT, Judith Stitt, MD, MS, and Patrick Remington, MD, MPH

Background

According to the American Cancer Society, an estimated 3,600 Wisconsin women will be diagnosed with breast or cervical cancer in 1999, and over 800 women will lose their lives from these diseases.[1] Recognizing the value of early detection, Congress passed the Breast and Cervical Cancer Mortality Prevention Act of 1990. In response to this legislation, the Centers for Disease Control and Prevention (CDC) established the National Breast and Cervical Cancer Early Detection Program. The CDC partners with state and territorial health agencies, American Indians/Alaska Native organizations, and national organizations to provide screening for the early detection of breast and cervical cancer.

Over 1 million women have been screened through the national program, and over 3600 cases of breast cancer and 400 cases of invasive cervical cancer have been diagnosed.[2] As part of this national program, the Wisconsin Women's Cancer Control Program (WWCCP) was established in 1993 and began screening women in June 1994. Currently the WWCCP is part of the Bureau of Chronic Disease Prevention and Health Promotion in the Wisconsin Division of Public Health.

Ms. Johnson is the Director of the Wisconsin Women's Cancer Control Program, Wisconsin Division of Health. Ms. Schell and Ms. Park are with the Cancer Control Program. Mr. Shalkham is a Clinical Assistant Professor with the Wisconsin State Laboratory of Hygiene. Doctor Stitt is a Professor of Radiation Oncology at the University of Wisconsin-Madison. Doctor Remington is an Associate Professor in the Department of Preventive Medicine and Associate Director for Outreach and Population Studies, UW Comprehensive Cancer Center.

Program Characteristics

The primary population targeted by the WWCCP is low-income women (i.e., annual household income at or below 200% of the Federal Poverty Guidelines) who are age 50 to 64 and who are uninsured or underinsured. Limited funds, however, are available to screen high risk women age 40 to 49. It should be noted that with the recent change in Medicare to now cover annual mammograms, WWCCP no longer provides screening for women covered by Medicare-Part B. Special emphasis has been placed on reaching African American, Asian, Hispanic, and Native American women as well as women living in rural areas.

WWCCP is decentralized with local coordinators covering the 72 counties and 11 tribes in the state. The coordinators work with and support service providers in their area, provide outreach, recruitment and education, help women navigate the health care system, and serve as case managers for women enrolled in the program. They serve as the first line of contact for WWCCP in their area.

WWCCP has a provider network of over 700 sites (physicians, clinics, family planning clinics, hospitals, laboratories, mammography facilities, tribal clinics, pathologists, radiologists and nurse practitioners), with mammograms being provided at over 200 sites and Pap screening services being provided at 500 sites. There is at least one provider site in every county.

Wisconsin Screening Activities

Since screening began in 1994, WWCCP providers have provided over 52,000 exams to Wisconsin women. This includes 21,230 mammograms for 13,948 women and 9,819 Pap smears for 6,212 women (see the table for a summary of screening activities through September 30, 1998). A total of 126 breast cancers and 2 invasive cervical cancers have been diagnosed. The women diagnosed with cancer reside throughout the state in 47 counties.

Since Medicare now covers annual mammograms, the WWCCP targets women 50 to 64 for screening (previously women 50 and older were recruited). Through September 30, 1998, 50% of the women, who received their initial WWCCP mammogram, were in this age group. This year's goal is to screen 75% of women in this age group with mammography. Goals also include reaching more women from priority populations. African Americans account for 18% of the women who have received mammograms. Almost 6% of all women screened were Hispanic.

Program Evaluation

Accurate and timely reporting of information is an important part of the WWCCP. Clinical informa-

Table: Wisconsin Women's Cancer Control Program Reported Screening Activities, June 1, 1994 - September 30, 1998			
Screening activity			
Mammogram results using ACR Lexicon		Pap results using Bethesda	
Number of screening mammograms	21,230	Number of Pap smears	9,819
Negative	76.7%	Negative	92.0%
Benign findings	12.2%	Inflammatory or reactive changes	2.8%
Probably benign	5.7%	ASCUS	1.9%
Suspicious abnormality	1.5%	Low grade SIL	0.5%
Highly suggestive of malignancy	0.2%	High grade SIL / squamous cancer	0.2%
Incomplete: additional imaging needed	3.3%	Other	1.3%
Unsatisfactory / pending	0.3%	Unsatisfactory / pending	1.3%
Number of breast cancers diagnosed		Number of cervical changes/cancers diagnosed	
		CIN I	25
Cancer in situ	35	CIN II / CIN III / Cancer in situ	18
Invasive cancer	91	Invasive cancer	2
Client Demographics			
Age of women at first WWCCP mammogram Total = 13,948 women		Age of women having Pap test Total = 6,212 women	
40-49	25.3%	40-49	24.9%
50-64	50.2%	50-64	61.1%
65 and older	24.1%	65 and older	13.4%
Unknown age	0.4%	Unknown age	0.6%
Race of women having mammograms		Race of women having Pap tests	
White	66.8%	White	87.1%
African American	18.1%	African American	1.2%
Native American	4.0%	Native American	2.9%
Asian/Pacific Islander	0.8%	Asian/Pac. Islander	0.3%
Other/Unknown	10.3%	Other/Unknown	8.5%
Ethnicity of women having mammograms		Ethnicity of women having Pap tests	
Hispanic	5.6%	Hispanic	5.5%
Non-Hispanic	83.7%	Non-Hispanic	82.5%
Unknown	10.6%	Unknown	12.0%
Total exams (screening mammograms, Pap tests, clinical breast exams, and diagnostic tests): 52,585			

tion, such as screening history and risk factors, as well as the results of each examination, is collected from each participant. These data constitute a set of 'minimum data elements' that are collected and reviewed at the state and forwarded to the CDC for review and analysis. A review of these reports indicates that many women have missing and incomplete data for follow-up services. While tracking and follow-up are carried out to some degree by local coordinators and providers, there is no overall mechanism to assure that women seen through the WWCCP are followed in a timely fashion to diagnosis and treatment. Based on these observations, the CDC has recommended the following changes in Wisconsin's program.

Recommendation #1: Improve the Reporting and Follow-up of Women Screened for Breast Cancer

A major challenge for the program is to improve the reporting and follow-up among participants screened for breast cancer. In particular, our reports indicate no follow-up was performed for women who have had an abnormal clinical breast exam, followed by a normal mammogram. According to protocol developed by the CDC, women with an abnormal clinical breast exam that is suspicious for cancer should have a mammogram. However, regardless of the results of the mammogram, these women must have further testing to rule out cancer.

Screening for and evaluation of breast abnormalities begins with physical examination of the patient. The physical findings are commonly described with a myriad of adjectives—"lumpy," "bumpy," "thickened," "glandular," "rubbery," "irregular" are common descriptors. Fruits and vegetables may be listed in the physical examination— "pea-sized," "walnut-sized" are common analogies. Even histopathologic terms are used—"fibrocystic feeling," "benign-appearing." The physical examination needs to clearly state whether a dominant mass is palpable in the breast. This should include a description of the size in centimeters and the location of the mass within the breast. A dominant breast mass is a discrete lesion with in the parenchyma that can be easily defined on physical

examination. It must also clearly state whether this lesion is suspicious of cancer.

Health care providers and women need to be aware that mammography alone is not sufficient to characterize a palpable breast mass. Mammograms fail to demonstrate abnormalities in at least 10% of women with palpable masses[3]. Therefore, clinical judgment is needed to ensure the appropriate management and follow-up of a palpable mass. The patient's concerns, past history, family history and physical findings must be considered along with radiographic assessment. The evaluation of a dominant mass on clinical breast exam can be separated into two major categories depending on the patient's age.[4]

Women younger than 30 years

Observation of a dominant breast mass for 1 to 2 menstrual cycles is appropriate for this age group since the likelihood of breast cancer is low. If the mass does not resolve after observation further evaluation is needed. Ultrasonography and/or fine needle aspiration (FNA) of breast masses in this age group are more helpful than mammography to define the nature of the palpable mass.

Women older than 30 years

Observation of a breast mass is not indicated in a woman over the age of 30 because of the increased concern of breast cancer. Evaluation by fine needle aspiration, ultrasound, and/or mammogram will characterize the palpable mass and direct other decisions regarding diagnosis and management.

Recommendation #2: Improve the Quality and Consistency of Pap Test Reports by Participating Providers

The Bethesda System for Reporting Cervical/Vaginal Cytologic Diagnoses was developed at the National Cancer Institute sponsored workshop in 1988. The system provided uniform diagnostic terminology to improve communication between the laboratory and clinician, and in 1991, it was modified to more effectively meet needs. An additional outcome of the Bethesda 1991 conference was the development of a monograph that provided precise criteria for both the descriptive terms and the descriptors of sample adequacy. The Bethesda system, with some modifications, has been accepted as the reporting system used by most cytology laboratories in Wisconsin. The use of the Bethesda Reporting for pap smears by the WWCCP is mandated by the CDC so that consistent reporting can be achieved throughout the National Breast and Cervical Cancer Early Detection Program.

An informal survey of cytology laboratories in Wisconsin was conducted in early 1999 to identify reporting systems used for cervical/vaginal cytology and to determine any training/enhancement issues in cervical/vaginal cytology. Fifty-eight surveys were sent out to cytology laboratories throughout the state and 18 (31%) were returned. All laboratories responding use the Bethesda Reporting System, with some modifications.

These modifications generally reflected expanded diagnoses classifications that were not part of the Bethesda classification. All laboratories used both descriptive terms and sample adequacy descriptors in reporting. The survey identified an interest from all laboratories for a glass slide microscopic review program. Other skill enhancement activities, such as photomicrograph review and review of materials on the internet, were far less favored. The development of a glass slide training program in cervical/vaginal cytology which addresses the diagnostic criteria and terminology used in the Bethesda System is underway. The goal of this program will be to provide for a more consistent reporting of WWCCP cases and to prepare cytology laboratories to better adapt to changes in Bethesda Reporting, which may be the outcome of the next Bethesda Reporting Conference scheduled for October, 1999.

Summary

The WWCCP is an effective, statewide program that provides screening services to low-income women—many of whom do not have the resources to obtain these important preventive services. The program has a number of strengths. It is coordinated from the central office with program management, training, and technical assistance available to those doing day-to-day work. The program targets women between the ages of 50 and 64, many of whom are at risk of breast or cervical cancer, but who do not have insurance such as Medicare. Finally, the local coordinators provide a statewide network of public health professionals who promote breast and cervical cancer screening in their communities. They are in a position to be in touch with and know the clients and providers in their respective counties.

Careful assessment and reporting and follow-up of results among participants is a critical part of this program. With better reporting, the WWCCP and CDC can assure that women are receiving appropriate, high-quality preventive services.

Acknowledgments

Funded through a cooperative agreement with the CDC (U57/CCU509699-05). For more information on WWCCP contact your local health department, Cancer Information Service (1-800-4-CANCER) or the Madison office at (608) 266-8311.

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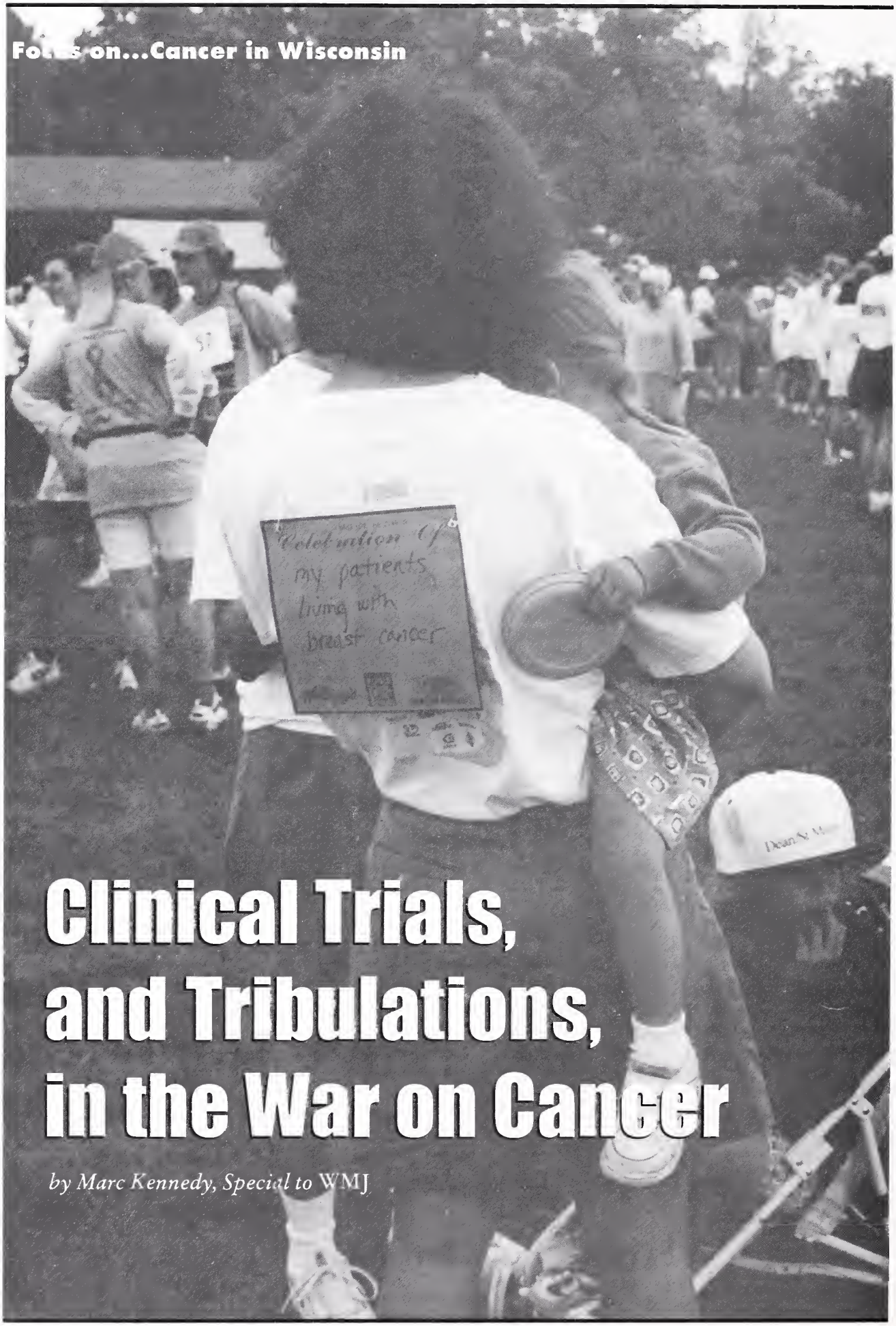

Clinical Trials, and Tribulations, in the War on Cancer

by Marc Kennedy, Special to WMJ

Open up just about any newspaper. The evidence is there.

- Lance Armstrong wins the Tour de France bicycle race.
- John Prine tours with a new band and is working on a new album.
- Laura Evans climbs the third highest mountain in the world.

The one thing they all have in common is cancer; more specifically, cancer survival.

Less than three years ago, Armstrong was fighting for his life. His testicular cancer had spread to his lungs and brain. But through surgery, chemotherapy and an extraordinary will, Armstrong is cancer-free today — and the champion of one of the world's most grueling athletic events.

Prine recently completed a national concert tour after battling and defeating throat cancer that threatened not only his livelihood, but also his life. On tour, he sang old tunes and new, as well as the praises of his oncologists.

Evans not only conquered cancer; she did so in style. She and two other breast cancer survivors celebrated in 1996 by reaching the summit of Argentina's Mt. Aconcaguac—at 22,841 feet, the highest mountain in the world outside of the Himalayas.

More people are surviving cancer than ever before. The overall cancer death fell from 1991-1995, after rising in the 1970s and 1980s, according to the National Cancer Institute (NCI).

"Thirty-five years ago, the survival rate was 35% for cancer patients," said W. Frank Wilson, MD, Director of the Medical College of Wisconsin Cancer Center. "Now it's greater than 50%. That is expected to go even higher with adequate levels of research."

For men and women of medicine and science, the reasons are well known: increased prevention, earlier and better diagnosis, and improved therapies. Oncologists understand better the relationship between genetics and lifestyle and the potential for developing one of the 100 different diseases referred to en masse as cancer; they know that MRIs, CAT scans and the latest in computer imaging can pinpoint neoplasms faster and more accurately than ever before; they know that they have more powerfully effective tools than ever before, chemotherapy, radiotherapy and biotherapeutics.

> *"Thirty-five years ago, the survival rate was 35% for cancer patients. Now it's greater than 50%. That is expected to go even higher with adequate levels of research."*
>
> *W. Frank Wilson, MD*

But men and women of medicine and science also know that the jump from bench to bedside is far from a simple stride. It involves a series of steps, each one as crucial as the one before, each one depending on the results of the former to guide the path for subsequent endeavors. It's not as easy as prescribing a pill, administering a bolus or targeting a stream of accelerated particles.

Today and for the near future, medical researchers and oncologists have to follow the painstaking process of clinical trials, in phases I, II and III. This involves a wide range of expertise that is usually available at major cancer centers such as at the Marshfield Clinic, Medical College of Wisconsin or in Madison at the UW Comprehensive Cancer Center, one of only 31 in the country so designated by the NCI, and the only one in the state. These trials require a host of basic researchers, biostatisticians, oncology specialists and highly trained support and nursing staff. But in the long run, what the trials require is patients. And put simply, far too few enter clinical trials.

"It's just not happening to an adequate level," said Wilson. "We feel that clinical trials are critically important to make progress against cancer. Clinical research is on a par with basic laboratory research to save lives and improve the survival rate. It is a national embarrassment that fewer than 5% to 10% of eligible patients are on clinical trials. This is not a level that we would desire or expect to have."

To effectively make this transition from laboratory to clinic demands the development of a system that will offer patients the benefits of these trials quickly and effectively, with as little disruption as possible to their normal routine. Major cancer centers in the state have worked for years to establish relationships with regional medical centers and local clinics and solo practitioners.

Trials and Tribulations

"There is a lot more pressure on docs in their daily practice today to handle larger case loads," said John Neiderhuber, MD, director of the UWCCC. "We all have less time in our practices to spend with our

Facing page: A physician shows support for her patients living with breast cancer at Madison's Race for the Cure in June.

patients than we would like. It's difficult to spend the extra time to educate patients about the importance of participating in a trial, of going all the way to Madison for portions of therapy."

Neiderhuber said that this is where community physicians and oncologists can rely on the expertise of the UWCCC and other major centers.

"In an effort to make clinical trials more available and acceptable to the public who live some distance from Madison, we've set up affiliate centers in Wausau, Manitowoc and in Freeport, Illinois," said Neiderhuber. "We're helping them recruit and hire faculty and oncologists, who will have clinical appointments in the medical school here. We've also established a Wisconsin Oncology Network. This is another attempt to link oncologists around the state to the center here and others and make clinical trials available to their patients. We're developing a web-based database here at a cost of about $500,000, to enable them to bring up on their computer information on all trials available, the forms available, eligibility requirements. We hope that this will be an incentive to make it as painless as possible for the physician as we can to get them to enroll patients into clinical trials."

The Marshfield Clinic's network of satellite clinics helps to enroll patients on clinical trials at its cancer center.

"We have oncology services at nine sites on the system throughout north central Wisconsin," said Richard Mercier, MD, chair of medical oncology. "Our system provides access to these patients, an important step for us and them.

As a Community Clinical Oncology Program (CCOP) since 1983, Marshfield has full access to cooperative group protocols via the NCI and national study groups available to the UWCCC and MCW. Marshfield's system enables many cancer patients to stay close to home for treatment as well.

"One of the main drawbacks in the past to enrolling more patients was multiple visits to the central oncology center," Mercier explained. "The travel to Marshfield made it a hardship to participate for many. Now, we have the option to treat them locally and still enroll them on trials. Ten years ago nearly all had to come to Marshfield, but now about a quarter to a third never have to come to Marshfield campus. This arrangement also allows us to more easily introduce new anti-cancer agents to more patients. It's a real boon in quality of care. Plus with our electronic records system, we can manage protocol data centrally in Marshfield, though patients may be treated locally."

> *We cannot become content with the results of therapies to date. So let's change it. How to do it? New ideas in the laboratory, new trials testing new drugs, new combinations, new strategies. But we have to view all this as mainstream medicine, not 'experimental.' It's a loaded word.*
>
> *James Stewart, MD*

Some smaller clinic or solo physicians fear that once they refer patients to a larger medical center, they will lose them.

"Clearly that's a hurdle to overcome," Neiderhuber acknowledged. "We do work hard on that issue here. We try to establish a level of confidence among young oncologists in communities in this state as well as others nearby.

"The first interest I have is for my patients. I think doctors throughout the state feel the same way. Patients put their trust in me. If I know the NCI has something that might be positive for my patient, what I do and what I think all my colleagues do, here or in private practice, is to get them the best care possible. I'm enough of an idealist, an old fashioned horse-and-buggy doctor I guess, and that I tend to ignore what our insurance companies tell us. I feel that, 'you want to take care of the patient better than I can, fine, but right now, I do what I have to do, then you can work it out later'."

Insurance coverage and payment for clinical trials by HMOs have been contentious issues, said Neiderhuber, but added that the climate is improving.

"Another hurdle is that managed care can be an obstacle to referral and participation in trials," he said. "Often the trials are regarded by the managed care organization as being 'experimental,' not something that they should cover. But the fact of the matter is that nearly everything we do in any given protocol is based on improving existing treatment. None of us are interested in doing anything that might fail. As academics, one of the ways our success is measured is by publishing and lecturing about our successes, not our failures.

"So we try to educate our colleagues in the business world that we're trying to develop treatments that are more efficacious. That it's better for them to spend a dollar for good treatment than a dollar for bad treatment."

Improved Care in Clinical Trials

In addition, Neiderhuber added that in the long run, patients get better care when enrolled in clinical trials.

"There is no question," he explained. "Many studies in this country indicate that patients do

better, have a better quality of life, and live longer if they are managed in a center in which clinical trials are a focus and in which they participate."

Wilson concurred concerning the level of care protocol participants receive.

"Clinical trials always involve the recognized standard of care," he said. "In most, if not all, instances the trials are also the most cost-effective level of care as well. It's only good sense to conduct them because of the millions—even billions—of dollars saved.

"This currently is caught up in the Patients Rights bill in Congress," said Wilson, "because both citizen and professional advocates from the cancer community are pushing it. unfettered access to clinical trials related to insurance problems. So there is a matter of national policy that has to change. Now it's in the House, on hold."

Some insurers have already figured out the value of clinical trials and are throwing their support — and coverage - behind research protocols.

"Several large Midwest insurance companies are encouraging their patients to enroll in trials," said James Stewart, MD, professor of medicine and medical oncology at the UW Medical School and chair of clinical affairs committee at the UWCCC. "Nationally Blue Cross-Blue Shield supports bone marrow transplant (BMT) studies."

Also, it can be more cost-effective in the long run to cover patients in clinical trials, according to Tom Anderson, MD, professor of clinical oncology and chief of hematology and oncology at the Medical College of Wisconsin.

"Some insurance companies balk at paying for clinical trials, but more enlightened ones have gotten better," he said. "We need to convince both national and regional insurance carriers that they should be covering care under research studies because this improves overall treatment and disproves needless care in the future.

"For example, consider the outcome of bone marrow transplants for women with breast cancer. They don't work very well. We could have had this answer years ago if insurers allowed us to enroll more women on trials. We couldn't get eligible women transplanted because they would be involved in a research study, but then the insurers would go ahead and pay for BMTs haphazardly based on irrational and emotional demands until we found out this procedure that works well for certain cancers didn't work well with breast cancer. We would have saved them hundreds of thousands of dollars and a lot of time and effort. It took us six years to find out that BMTs don't work well for women with breast cancer. Had we systematically conducted clinical trials properly, we would have found this out in three."

Anderson added that it is crucial to educate referring physicians and inform the public that the outcomes and welfare of patients is very carefully monitored by panels of experts throughout the course of any bona fide clinical trial.

"If one of the treatment options proves to be superior, or inferior or too toxic, study stops immediately," he explained. "These are built-in safeguards. For example, the tamoxifen breast cancer prevention study was stopped prematurely several years ago once the investigators realized that they were recording a tremendous reduction in breast cancer, so everyone on the study could receive it.

"In a study, treatment options are stopped if data show they are toxic or inferior," said Anderson. "But physicians whose patients are not in a study may continue a treatment. Being enrolled in a trial gives you a window of opportunity to give patients something better. Cancer patients should be part of a clinical trial whenever possible.

"Unfortunately, we are woefully short on recruiting patients. Many don't enroll because of erroneous attitudes about clinical trials.

"We need to educate our colleagues, patients, insurers, as well as make research studies simpler, more user-friendly," said Anderson [see accompanying article.] "Some are far too complicated, with too many blood tests, which upset patients as well as insurance carriers. Just as there is a call for more scientific rigor, this is a responsibility to recognize needs of patients."

MCW's Wilson sees additional barriers to patient participation. In particular, that somehow, patients and even their physicians don't understand that they will be receiving the best care available.

"All patients in organized clinical trials get standard of care plus something else," he added. "Not experimental care. It's the level of care considered ideal by a large body of expert opinion. A trial couldn't be performed without approval by numerous medical boards and ethics committees. Too often in the minds of patients and caregivers trials are erroneously equated with 'guinea pig' experimentation. Literature in last few years shows that patients actually get more care.

"This has been less of a problem in Wisconsin than other areas in the country thanks to the forthcoming attitude here of referring physicians," said Wilson. "Generally, the state does a good job. But that doesn't change the fact that enrollment in trials nationally is far less than it should be."

Expense of conducting trials has something to do with the low rate of enrolling eligible cancer patients, said Mercier, though "we've got a better track record than most, it is still far short of what it should be.

"One of the biggest barriers continues to be funding. It is

very expensive. Often it becomes difficult for clinicians to take time to follow up on data and spend time with patients to sufficiently explain protocols to them. This is a constant issue. NCI funding for CCOP is basically a seed grant; it doesn't cover all costs, so medical economics becomes more of an issue."

While funding trials is one problem, another is simply having adequate trials for certain diseases. "Kidney cancer, for example," said Mercier, "lacks enough high quality clinical trials."

The notable exception to low clinical trial enrollment is in pediatric cancer, according to Wilson.

"Eighty to 90 percent of children with cancer are on clinical trials," he explained. "The main reason is that cancer that afflicts kids has been studied systematically for the last 30 years. We've fine-tuned treatment in this time to the extent that we're starting to emulate the same treatment planning among adults with cancer. The other reason is that kids usually have been treated in academic medical pediatric centers which is the way to proceed if one wants to make progress efficiently."

Standard of Care Not Good Enough

While medical oncology researchers and clinicians have made significant advances, many are far from satisfied.

"We still have too many diseases and too many patients with cancers being treated with so-called 'standard therapy' that is ineffective," said Stewart of the UWCCC. "For too many diseases, standard doesn't work well. How do we get new and better treatment? The only effective mechanism now is clinical trials. The whole thing hinges on up-front realization that current treatments just are not adequate particularly for advanced cancers.

Almost any advanced cancers — breast, lung, prostate, colon - once they metastasize, they are considered virtually incurable even with the best therapy. Lance Armstrong is the poster boy for cancer therapy, but he was luckily afflicted with an easy to treat, more rare type of cancer. He would not be doing so well if he had colon, prostate or lung cancer that metastasized."

Stewart added that physicians in the state must not become complacent because of the recent successes in cancer therapy.

"We cannot become content with the results of therapies to date," he added. "So, let's change it. How to do it? New ideas in the laboratory, new trials testing new drugs, new combinations, new strategies. But we have to view all this as mainstream medicine, not 'experimental.' It's a loaded word."

Stewart pointed out that cancer care and cooperation among

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oncologists in the state is outstanding, there is always room to improve.

"We have great affiliations in research groups such as ECOG (Eastern Cooperative Oncology Group), RTOG (Radiation Therapy Oncology Group) and the Pediatric Cancer Group, and excellent quality control, specialized nursing, among other important areas," said Stewart, adding that he and his colleagues have to do a better job raising awareness of these resources.

What's on the Horizon?

Advances in genetic therapy and the Cancer Genome Anatomy Project (CGAP) will undoubtedly alter the terrain for cancer therapy in a few short years, said Neiderhuber.

"In a few years we'll be able to classify patients and tumors in a new way. Not only will we be able to look under the microscope and say this patient has an invasive aductal cancer of the breast, we'll be able to say that it has the following set of genetic abnormalities," he explained. "That means that this patient's genetic fingerprint for that tumor may be very different from the patient sitting next to her in the clinic with the same type of cancer. That will revolutionize how we treat different cancers. The process is going to require a totally new commitment by our patients to help us answer the questions that will come from that knowledge and research. There will be a much more rapid process from the laboratory to the clinic, from discovery to application. That is going to put some very real demands on us as professionals and as patients to do the best we can to get those answers as quickly as possible. We can't do that without more people participating, we can't do that with less than two percent of eligible cancer patients going on trial. We can't even do it with 10%."

Neiderhuber is confident that eventually the UWCCC and other centers will begin to draw in more and more eligible patients into trials, though it will take concerted time and effort. As more patients overcome cancer, their survival attests to the importance of participating in trials.

"Many patients also talk about the desire to be involved in something of value," said Neiderhuber. "They realize that this is serious business, and it is hard on them and that they indeed may not survive. But many also have positive feelings about a sense of contributing that by participating in the trials they may make it better for someone else. With all the negative aspects of fighting cancer, to survive, that's a nice thing to hang on to."

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Informed Consent is Uniformly Confusing

By Marc Kennedy, Special to WMJ

Improving care remains one of the primary focuses of major medical research and clinical centers. But in the course of discovering new therapeutic approaches via clinical trials, some clinical researchers have concluded that certain processes performed in the name of all things good and holy to modern allopathic medicine have gone awry. Namely how randomized trials are misconstrued and how informed consent is performed.

"Research-based trials offer hope for better treatment to patients and often offer the best care available," said Tom Anderson, MD, professor of clinical oncology and chief of hematology and oncology at the Medical College of Wisconsin. "But very few adult patients enroll in research studies. Why? Patients and even referring physicians sometimes think participants don't receive good care. There is some wonderful data indicating that patients do better in randomized trials even if they are not receiving the new therapy. They are still receiving the most advanced treatment available."

Despite such evidence, randomized trials are still a hard sell for many researchers.

"Many don't like the idea of placebos, but placebos are rarely used anymore," Anderson explained. "For most trials the treatment options are one of several treatment programs that a panel of experts believes is the best or the standard of care. So, no matter what, on a clinical trial you will get state-of-the-art care or something theoretically better."

Still, some doctors and patients become frustrated that they aren't guaranteed the new therapy.

"Some even get angry," said Anderson. "A patient of mine got mad when she thought she might get a placebo or something less than the best, most recent therapy. Understandably, she was under a lot of stress because her cancer had recurred. But her perception was that she didn't want to miss getting the best treatment."

Such notions are creating problems for researchers in search of willing subjects.

"It's almost impossible to get patients recruited to study a new angiogenic drug," he said. "The trial calls for observing certain patients who are already receiving the most advanced therapy, and giving the new compound to the other half. But prospective patients won't sign off because they think they are being used as a guinea pig."

Improving oversight committees and patient investigational review boards can help remove roadblocks and allow more rapid and effective clinical trials.

"Informed consents are overly scary and in-depth due to the litigious society in which we live," said Anderson. "No rational person would sign it if they read it. They are mostly composed of five pages of what could go wrong, and almost nothing about whether it can cure you. In Canada, an informed consent form is 100 words."

Review committees for institutions get over-occupied with minutiae which delays activation of a protocol over some details as obscure as an adjective or adverb.

"Because of unnecessary regulatory requirements, our system is very inefficient and cumbersome," said Anderson. "I think we're confusing patients. If protocol consent forms are hard for me to understand, how much will the average patient get? Does a drug help shrink a tumor or ease pain? Who can figure it out? The summary of the informed consent was longer than the protocol description.

"The problem is that these committees and boards are made up of people without expertise whose shoulders are looked over by lawyers. We end up raising patients' anxieties by mentioning every possible side-effect they could experience. The irony is that if not for the addition of the new therapeutic, we would treat the patient just about the same — but we wouldn't mention everything that could go wrong, only the more likely ones."

Anderson said a patient died in the elevator on the way to radiotherapy. In the next protocol, the principle investigator included this factor into the informed consent.

"He was just tweaking the committee who would review the protocol, but he made it obvious that we've reached a ludicrous point."

Anderson pointed out another example involving the drug

tamoxifen. A well-known preventative of recurrent breast cancer, tamoxifen was also used in a protocol to treat melanoma. When the word came out that tamoxifen in certain cases could cause endometrial cancer in women, everyone on the melanoma study had to be re-consented. Even the men.

"This sort of nonsense erodes confidence in the patient public and limits the effectiveness of clinical trials," said Anderson. "Only in America. It's mind boggling. We need to inject more common sense into informed consent; to allow health care workers to talk about the relevant things. It's analogous to pointing out to someone having minor surgery in otherwise normal health that cardiac arrest might occur from anesthesia. It's not good care to scare patients. We don't do this normally in patient care, but once we're in a research protocol, we have to follow these ludicrous rules.

"Patients truly don't understand what they're signing. There is a group of people working nationally to come up with user-friendly informed consent for patients. The hope is that patient oversight committees and boards will start to delegate review to people with the proper expertise. At MCW, I can get a national protocol that's being used in Madison, Rochester, or Houston. But I have to re-write it to go through our hospital committee, and again for our cancer center committee, and then the medical school committee, then the VA committee, if in clinical research center, would have to reformat it again."

Despite this redundancy and oversight, not to mention a huge amount of time spent on paperwork, Anderson said there is little evidence that it better protects patients.

"It costs hospitals a lot of money, and you have to ask if they are really in a situation to protect the public," he added.

"If we could streamline the process, or could legally defer this type of redundant certification, then we could have central review. Such a process would be easier to manage with computer data technology. But all we've done so far with the technology is accumulate more data, a quantum expansion.

"For example, why should every VA in the country do its own review of the same protocol? If we conducted a central review for a protocol that would work in any VA in the US, it would save time, money and effort, Anderson said. "Wouldn't that be novel?"

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Cancer Trends in Wisconsin: 1988 to 1996

Kenneth T. Bastin, MD

ABSTRACT

Cancer represents a major health issue in the United States, accounting for 1.2 million newly diagnosed cases each year. In Wisconsin, an estimated 25,000 residents will be diagnosed with cancer each year and over 10,000 will die from their disease, representing nearly one-fourth of all Wisconsin deaths. Lung cancer has been Wisconsin's most lethal cancer, accounting for 28% of male and 21% of female cancer mortality in 1996. Between 1988 and 1996, age-adjusted cancer incidence in Wisconsin rose 20% – to 405 cases per 100,000 population. Fortunately, in the same period, age-adjusted mortality dropped 8% to 159 cases per 100,000 population. Males have higher cancer incidence and mortality rates than females. The most frequent cancer diagnoses in males were of prostatic (29%), lung (15%) and colonic (9%) origin; among females, breast (31%), lung (11%), and colon (10%) cancers were most often diagnosed. Wisconsin cancer rates are likely to increase as Wisconsin's population ages, highlighting the need for greater cancer awareness and improved prevention, screening and cancer treatment.

INTRODUCTION

Cancer is responsible for more than 23% of all deaths in the United States and ranks only second to heart disease in mortality.[1] The American Cancer Society estimates that 1,228,600 new cases of cancer were diagnosed in the United States in 1998.[2] In 1998, 564,800 cancer patients were expected to die from their disease, which is slightly more than 1,500 deaths per day. In Wisconsin nearly 25,000 cancer cases will be diagnosed each year, and more than 10,000 will die from their disease – accounting for 23% of all Wisconsin deaths.[3]

This study briefly summarizes trends in overall and subsite cancer incidence and mortality in Wisconsin. These data may allow for better planning and allocation of resources in the public, charitable and private health care sectors, possibly including an emphasis on community cancer screening, cancer prevention and treatment programs.

Doctor Bastin is associated with the Department of Radiation Oncology at St. Lukes Medical Center in Milwaukee, WI.

METHODS

Two primary sources of cancer data were used in this study: the American Cancer Society (ACS) which publishes the Cancer Statistics issue of Ca: A Journal for Clinicians[2,4] and statewide data from the Wisconsin Department of Health and Social Services, now renamed the Wisconsin Cancer Reporting System (WCRS), part of the Wisconsin Department of Health and Family Services. Data from the WCRS has been published since 1988.[3,5-12] (*Copies of the report are available by writing to: WCRS, Division of Health Care Financing, Department of Health and Family Services, PO Box 309, Madison, WI 53702.*)

Descriptions used in this article include:

Age-adjusted incidence and mortality – refers to age-adjusted data comparing Wisconsin residents to the 1970 US population. These data are based on guidelines established by the National Cancer Institute and Center for Disease Control.

Years of potential life lost – refers to the age of cancer patients at death subtracted from their life expectancy.

Cancer mortality to incidence ratio – refers to the number of cancer deaths of a site divided by the incidence of cancer in that same site.

The ACS publishes national cancer data as the United States does not have a formal cancer registry. ACS cancer incidence and mortality data are estimated using a three-step procedure using data from the US Census Bureau and the National Cancer Institute's Surveillance, Epidemiology, and End Results program.[13] ACS data excludes in-situ disease except for bladder cancer. Invasive basal cell and squamous cell cancers of the skin are also not included in their cancer data.

The most recent publication of the WCRS is from 1996.[3] Wisconsin data are generated from over 300 Wisconsin hospitals and 16 out-of-state hospitals which treat Wisconsin residents. The WCRS has been collecting data since 1976 as mandated by Wiscon-

Table 1: WCRS 1996 Data for Cancer in Wisconsin

Primary Site	Total	Male Incidence	Female	Cancer Deaths	Male	Female
Mouth/Pharynx	642	431	211	149	94	55
Stomach	367	243	124	226	150	76
Colon	2362	1136	1226	933	460	473
Rectal/Sigmoid	893	482	411	180	95	85
Pancreas	467	246	221	564	265	299
Other GI Tract	777	470	307	624	396	228
Lung	3200	1853	1347	2590	1535	1055
Other Respiratory	383	291	92	104	69	35
Bone/Connective Tissues	239	113	126	96	47	49
Melanoma	703	372	331	150	87	63
Breast	3887	30	3857	823	8	815
Cervix	820	0	820	69	0	69
Uterine	751	0	751	55	0	55
Other Female	689	0	689	388	0	388
Prostate	3489	3489	0	748	748	0
Other Male Genital	215	215	0	10	10	0
Bladder	1141	833	308	247	168	79
Kidney/Ureter	636	380	256	276	156	120
Eye/Brain/CNS	426	228	198	262	144	118
Lymph Nodes	784	433	351	525	287	238
Leukemia	632	354	278	431	236	195
Misc.	1211	573	638	991	517	474
TOTALS	**24714**	**12172**	**12542**	**10441**	**5472**	**4969**

WCRS tabulated cancer incidence and mortality in 1996, divided into 22 subsites, gender specific.

sin Statute 255.04. Similar to the ACS, the WCRS excludes basal and squamous cell cancer of the skin, but does include in situ disease.

Wisconsin cancer age-adjusted incidence and mortality were plotted from 1988 to 1996.[3,5-12] Data were also plotted with respect to trends in incidence and mortality for four major subsites of cancer (lung, prostate, breast, colorectal). Also, the 1996 cancer incidence and mortality data is tabulated for 22 subsites. Breast cancer data is presented for females only despite the fact that males constitute about 1% of total breast cancer cases. Colorectal cancer incidence and mortality was determined by summing the rates for colon and rectal-sigmoid cancers. In this study, lung and colorectal cancer incidence and mortality includes both sexes, unless stated otherwise.

RESULTS

Table 1 illustrates WCRS data from 1996, and categorizes cancer into 22 primary sites, including incidence and deaths, as well as gender breakdown. Of the 24,714 cancer cases diagnosed in 1996, 51% were female. Males, however, constituted 52% of the mortality—primarily attributed to an extra 480 deaths from lung cancer. Overall Wisconsin cancer mortality to incidence ratio was 0.42 in 1996.

Table 2 illustrates that more than half of all Wisconsin cancers arise from four specific sites: breast, prostate, lung and colon. Nearly half of all cancer deaths are from these same four sites. Lung cancer is diagnosed half as frequently as prostate or breast cancer but is responsible for twice as many deaths. Lung cancer is also responsible for over one-fourth of all Wisconsin cancer mortality. In 1996 the ratio for lung cancer mortality to incidence was 0.81.

Figure 1 represents the yearly calculated overall Wisconsin cancer incidence and mortality from 1988 to 1996, including gender breakdown. While the overall age-adjusted cancer rate has increased from 336 to 405 cases per 100,000 population, the overall mortality has dropped steadily from 165 to 159 cases per 100,000 population. In 1996, males had considerably higher cancer incidence (448 versus 379 cases per 100,000) and mortality than females (196 versus 132).

Figure 2 plots the incidence and mortality of Wisconsin cancer from 1988 to 1996 for male, female, breast, prostate, lung and colorectal cancers. The overall nine-year trend suggests a slight progressive increase in incidence in these primary cancer

Table 2: Wisconsin Cancer Incidence and Mortality for Major Subsites

	% male cases	% male deaths	% female cases	% female deaths
Prostate	29	13		
Lung	15	32	13	25
Colorectal	10	9	11	11
Breast			30	16

WCRS 1996 breakdown of four major cancer sites and their mortality.

Table 3: NCI Lifetime Risk for Cancer

Cancer Category	Lifetime Risk
Male: Any Site	46.60%
Female: Any Site	38%
Female: Breast	12.50%
Both Sexes: Colorectal	5.80%
Male Prostate	18.90%

NCI calculated lifetime risk for developing cancer, with an emphasis on prostate, breast and colorectal cancer.

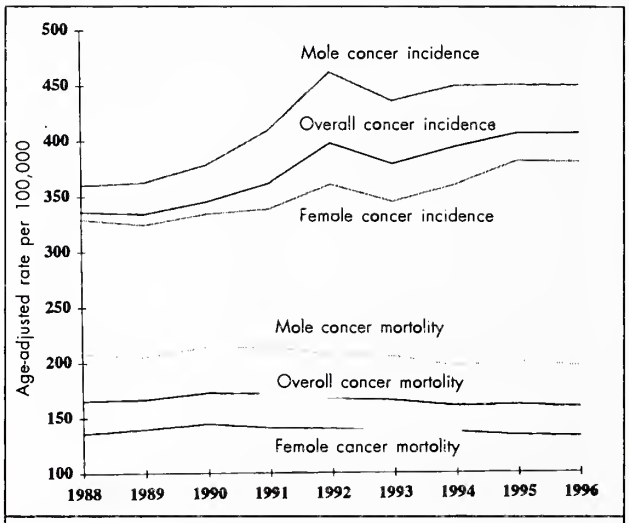
subtypes with the exception of colorectal cancer which has been relatively stable. The age-adjusted number of prostate cancer cases peaked in 1992, corresponding to newly-employed prostate-specific antigen (PSA) screening. Breast cancer mortality declined among Wisconsin females between 1988 and 1996 from 29 to 22.5 deaths per 100,000 (a 22% drop). Prostate, lung and colorectal cancer mortality has remained relatively unchanged during this period.

DISCUSSION

The ACS projects 1.2 million new cases of cancer in the United States in 1999, with nearly half that number dying of disease. Cancer affects 25,000 patients yearly in Wisconsin—plus their families, relatives and close friends. Of these patients, over 10,000 patients will die from their disease, constituting 23% of all Wisconsin deaths - a percentage identical to the national figure.[3,4]

Cancer incidence and mortality is typically a function of the aging process. More than 64% of all males diagnosed with cancer in 1996 were age 65 or greater, and this group generated 72% of all male cancer deaths. The respective figures for females were 54% and 73%.[3] Data from the NCI shows that the lifetime risk of cancer is 46.6% in males and 38% in females.[13] However, the risk of developing cancer from birth to age 59 is "only" 8.23% and 9.05% among males and females respectively. This dramatic difference in cancer risk between age ranges underscores how much age is a major risk factor for

Figure 1: Wisconsin Cancer Incidence and Mortality 1988–1996

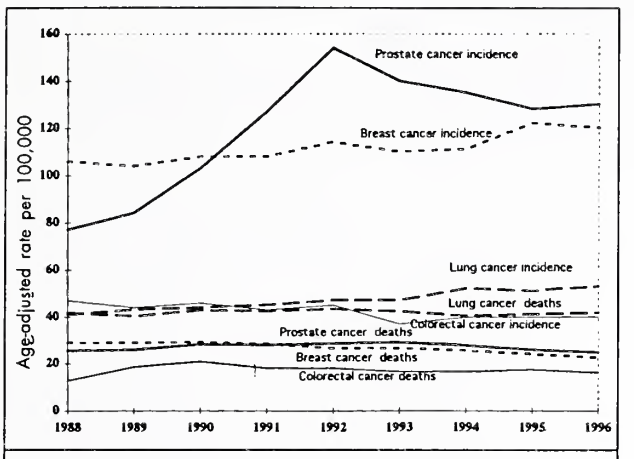


Wisconsin Cancer Incidence and Mortality trends from 1988 to 1996, broken down into gender.

developing cancer. Thus, as the Wisconsin population ages we should expect a disproportionate increase in cancer cases. The NCI's calculated lifetime risk for developing prostate, breast, and colorectal cancer is shown in table 3. The lifetime risk for developing lung cancer in males and females is 8.3% and 5.5% for males and females respectively; this data however does not differentiate between smokers and non-smokers and is therefore excluded from table 3. Clinically, cancer represents a spectrum of diseases with respect to morbidity and mortality. For example, in 1996 lung cancer was diagnosed in 3200 Wisconsin residents and of these 2590 died from their disease. Clinically, lung cancer is infrequently localized at diagnosis and tends to be aggressive.[15] Other highly "lethal" cancers include stomach and pancreatic cancer, lymphoma, and leukemia. On the other end of the spectrum, uterine corpus cancer was diagnosed in 751 Wisconsin women and claimed 55 lives. This relatively low .07 mortality to incidence ratio is attributed to a typical early stage at diagnosis of this disease as well as the relative curability of a hysterectomy.[16] The reported overall cancer mortality is thus a complex hybrid of cancer subsites, some of which are more deadly than others. Meaningful interpretation of mortality data should include attention to the subsite trends.

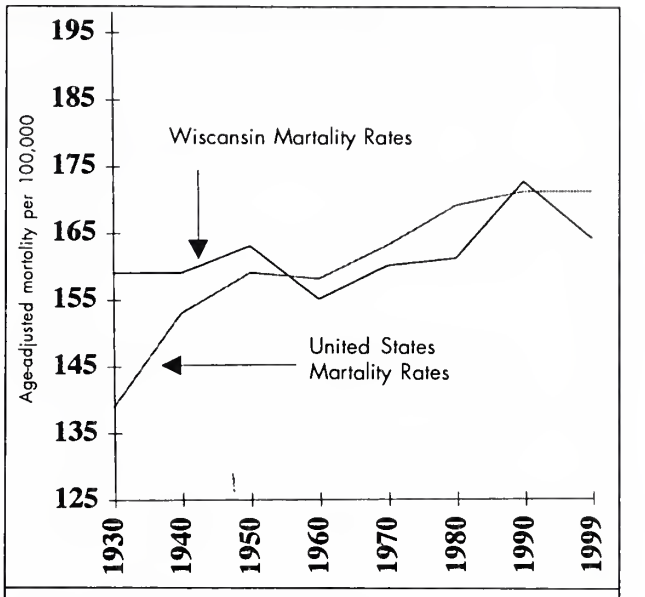
According to WCRS data, 68% of breast cancers were diagnosed in a "local" stage. In 1996, 3887 Wisconsin women were diagnosed with breast cancer and 823 died from their disease (ratio 0.21). Among those patients, the average number of years of potential life lost from breast cancer in Wisconsin women was 19.8 years.[3] This dramatic number

Figure 2: Wiscansin Site-Specific Cancer Incidence and Martality 1988–1996



Wiscansin site-specific cancer incidence and martality trends fram 1988 ta 1996, broken dawn inta four majar cancer sites.

Figure 3: Cancer Martality: US and Wiscansin 1930–1999



US and Wiscansin averall cancer martality data is platted aver the past seven decades.

illustrates the magnitude of potential impact this disease has upon our breast cancer patients and their families. Breast cancer mortality among females has been dropping in the United States over the past decade. Possible reasons for the drop include dietary changes, environmental factors, enhanced mammography screening and improved cancer treatment.[17] Of Wisconsin females age 50 or older, 59% had mammograms in the past year.[3] ACS guidelines suggest that all women over age 50 obtain yearly mammograms which can detect neoplasms prior to being clinically palpable.[18,19] Recent trial data also suggest that Tamoxifen can prevent malignancy from developing in females at increased risks for breast cancer.[20] Thus, improved mammography screening rates and successful efforts in preventing beast cancer could drop breast cancer mortality further in the future.

Interestingly, WCRS data show that among adults the average years of potential life lost was highest for cervical cancer – 27.9 years. Sixty-nine females died from cervical cancer in Wisconsin in 1996 (Table 1). Cervical cancer often develops in younger patients, growing "silently" and behaving aggressively. Cervical cancer often affects lower socioeconomic groups; in Mexico this disease accounts for 25% of female cancer mortality.[21] Pap smear screening in case-control studies has been shown to reduce mortality from cervical cancer,[22] yet only 59% of Wisconsin females age 18 or older had Pap smears in 1996.[3] These data suggest that more diligent screening efforts, resulting in an earlier cancer stage at diagnosis, could reduce mortality.

Lung cancer is our nation's biggest cancer killer and despite significant research efforts, mortality from this disease remains relatively unchanged over the past two decades. As a whole, only 13% of lung cancer patients live five years after diagnosis.[15] Over 80% of lung cancers are attributed to smoking[23] and thus lung cancer levels are dependent upon society's use of tobacco. Approximately 30% of Americans smoke, but the most dramatic drop in smoking incidence over the past 30 years has occurred in college-educated Americans, suggesting that the lower socioeconomic populations have not been effectively educated about the risks of smoking and cancer.[24,25] Downward smoking trends in Wisconsin and the nation suggest that we will see a drop in lung cancer incidence in the future. Unfortunately, higher levels of lung cancer in developing nations are also expected because of importing evermore tobacco products.[26] Successful management of lung cancer realistically entails better prevention and education, rather than an emphasis on modestly effective therapies.

Wisconsin cancer mortality is gradually decreasing despite an increase in the incidence of cancer. This trend reflects a number of factors including better cancer therapies, but is also attributed to an increase in earlier stage disease at diagnosis. Prostate cancer incidence peaked in Wisconsin and in the United States in 1992, primarily because PSA allowed for the highly effective screening of males patients.[27] Also, mammograms have allowed for an increased detection of non-invasive "in-situ" breast cancer, which is highly curable.[18] Not surprisingly, these "stage migrations" result in lower overall mortality from

disease. Also, the gradual reduction in very lethal cancer such as stomach cancer, has lowered overall cancer mortality. Thus improved trends in cancer mortality are a reflection of improved cancer therapy (e.g. chemotherapy for seminomas), screening, stage migration (e.g. prostate cancer), and changes in subsite cancer composition (e.g. stomach cancer). Data from the WCRS and the ACS differ in that the latter exclude in-situ disease – which accounted for 13% of Wisconsin's cases.[3] Demographics may also influence mortality rate differences. Regions of the United States may have larger African-American populations which have a 34% higher chance of dying from cancer.[14] Thus, comparisons between WCRS and ACS data must not be rigidly interpreted. As a general impression, Wisconsinites seem to fare comparably or slightly better than the United States as a whole, with lower mortality (159 versus 173 deaths per 100,000) and a slightly lower mortality to incidence ratio (0.42 versus 0.46). Figure 3 plots cancer mortality in the United States and Wisconsin from 1930 to 1999 (the 1999 numbers are ACS estimates for the United States and Wisconsin). In the earlier part of the century, Wisconsin fared poorly with the rest of the country, but since the 1950's Wisconsin has demonstrated better-than-average national cancer mortality.[5] The reasons for the difference are not obvious but at least suggest that Wisconsinites have access to appropriate, if not above-average, health care.

Cancer represents a major health and social issue and consumes a disproportionate level in our overall health care emphasis – including the routine screening of malignancy in healthy adults, diagnosing and staging of disease after cancer detection, radical or palliative therapies, post-treatment follow-up (often for life), and terminal care (if applicable). The non-quantifiable human costs of cancer are high among patients and their families, and include anxiety, depression, pain, suicide, as well as the disruption of family structure and dynamics. This study was intended to efficiently outline the extent of cancer incidence and mortality in Wisconsin and hopefully foster continued dialogue into better future prevention, diagnosing, and treatment of this important disease process.

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Management Trends for Lung Cancer

M.P. Mehta, MD, and S. Sanghavi, MD

INTRODUCTION

In 1998 over 170,000 Americans were diagnosed with lung cancer.[1] Unlike the male preponderance seen in the past, this disease has now become an equal opportunity killer with a male to female ratio of 53 to 47. It was the No. 1 cancer killer in 1998, accounting for 28% of all cancer deaths. Unfortunately the overall survival from this disease remains dismal with 1-year survival of 40%, 5-year survival of 14%. Although far from optimal, the 14% 5-year survival represents a significant improvement from the 8% figure noted in 1963. From a treatment perspective, lung cancer can broadly be categorized into two major entities, small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC).

SMALL CELL LUNG CANCER (SCLC)

Following two decades of investigation, the standard therapeutic approach for SCLC is now firmly grounded in the use of combination chemotherapy. In the last five years, the role of radiation therapy has been identified more accurately in limited stage SCLC. A recent meta-analysis clearly indicates that the addition of thoracic radiation early in the management of this disease together with combination chemotherapy improves survival.[2] A major randomized trial published in 1999 established that the twice- daily radiotherapy given concurrently with chemotherapy is superior to conventional radiation therapy in the management of limited stage SCLC, establishing a new treatment paradigm for this disease.[3] The role of radiation therapy has now been more firmly established for prophylaxsis of brain metastases. The brain represents a sanctuary site from chemotherapy for micro-metastatic deposits of tumor and is an important site of failure. A recent major randomized trial of prophylactic cranial radiation trials indicates a survival benefit in patients who achieve a complete response to initial therapy.[4] Currently, there is no definitive role for surgical management of SCLC. The current strategy in optimizing survival improvement in this disease focuses on the evaluation of newer chemotherapeutic agents including the Camptothecin analogs, newer vinca alkaloids, gemcitabine and others. In addition, current trials are investigating the role of anti-idiotypic vaccines to augment the immune response to produce more durable survival in this disease.

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NON-SMALL CELL LUNG CANCER (NSCLC)

Although several trials conducted in the 1960's for early detection of lung cancer were unsuccessful, the development of newer techniques that detect molecular markers predictive of pre-neoplastic or early neoplastic changes has led to a resurgence in interest in developing screening tools for NSCLC. Several clinical investigations are currently evaluating such molecular markers as possible early detectors of lung cancer. Preliminary results demonstrate that ultra fast non-enhanced spiral CT may represent a major advance in early detection.

Another advance in the area of better detection has been the recognition of the value of positron-emission tomographic (PET) scanning in the staging of NSCLC. With the advent of more sophisticated PET scanners and improved resolution, it has become apparent that in addition to thoracic CT scan, PET scan provides an accuracy of over 80% in staging patients with NSCLC.[5]

Improvements in early detection and refinement in staging have also led to a better understanding of survival stratified by stage. For example, the previously classified tumor subtype, T3N0, categorized earlier as Stage IIIA disease has now been reclassified as Stage IIB NSCLC.

EARLY STAGE NSCLC

Therapeutic advances in NSCLC have focused primarily on optimal utilization of surgery, radiation therapy and chemotherapy. For early stage NSCLC surgical resection is the treatment of choice with cure rates of upwards of 80% for selected patients with T1N0 disease. Randomized trials have demonstrated

Table 1.

	Treatment			
Type and Stage of Cancer	Surgery	Chematherapy	Radiatherapy	Camments
Limited SCLC	na	yes	yes	Cancurrent chematherapy & radiatherapy; Radiatian therapy twice a day
Praphylactic Cranial Irradiatian			yes	Yes far camplete respanders with SCLC
Early NSCLC (SI and II)	yes	na	na	
Resected IIIA NSCLC (pathalagic N2)	yes	na	yes	Impraves lacal cantral
Advanced NSCLC (IIIA)	Patentially	yes	yes	Details depends an patient status and trial enrallment
Advanced NSCLC (IIIB)	˜ na	yes	yes	Details depends on patient status and trial enrallment

that lesser resection for early stage disease results in inferior survival, and therefore wedge resection is not recommended for these patients.

In a randomized Phase II trial conducted by the Lung Cancer Study Group (LCSG) 122 patients were randomized to wedge resection and 125 to lobectomy.[6] There was a three-fold increase in local failure in the group undergoing wedge resection with a significant reduction in five-year survival. In spite of high cure rates for the subset of patients with T1N0 disease, for patients with T2N0, T1N1 and T2N1 disease, survival is significantly reduced because of local and distant failure. Currently, post-operative chemotherapy is being evaluated in the management of these patients. Unfortunately, the data for post-operative therapy following resection of lung cancer thus far do not provide conclusive evidence of survival benefit.

In a randomized trial conducted by the LCSG, 210 patients with squamous cell carcinoma (N1/2) were randomized to receive or not receive thoracic radiotherapy after resection. No significant survival difference was noted between the two groups. However, the group receiving radiation therapy had only 3% local failure compared to 41% for patients not receiving post-operative radiotherapy.

In a recent meta-analysis it was suggested that patients receiving post-operative radiotherapy may in fact have inferior survival outcome compared to those not receiving it.[7]

Unfortunately, this review of nine trials included several patients with N0 disease as well as a large number of clinical trials conducted in an era when outdated radiotherapeutic techniques were utilized. In a recently completed randomized evaluation of the value of combined chemo-radiotherapy over radiotherapy alone as post-operative therapy for N1/2 disease, no significant difference in survival between the two arms was found, suggesting that at least in this subset of patients, the addition of chemotherapy as utilized in this trial did not yield a survival benefit.

ADVANCED STAGE NSCLC

For more advanced NSCLC current interest focuses on dividing these patients into two broad categories, either resectable or not. For resectable patients, there is significant interest in evaluating pre-operative chemotherapy or chemo-radiotherapy based on four small randomized trials. Two of these trials suggested a survival benefit with the use of preoperative chemotherapy, whereas two trials were negative. In the most widely quoted US trial, 60 patients were randomized with preoperative cyclophosphomide, etoposide, and cisplatin for three courses followed by resection or to resection alone. The mean survival time in the resection alone arm was 11 months compared to 64 months in the group of patients receiving perioperative chemotherapy.[8] Based on such encouraging early data, a major national randomized trial is underway to define the role of surgery in this group of patients.

For more advanced disease, i.e., Stage IIIB disease, several innovative approaches have recently been evaluated. The Radiation Therapy Oncology Group (RTOG) has evaluated the role of hyperfractionated radiotherapy with the understanding that the use of multiple daily fractions given over an overall treatment plan comparable to standard fractionation would reduce late effects and produce small increases in effective tumor dose. Although the data are suggestive of an improved survival benefit with such a method, conclusive evidence is not forthcoming. In the United Kingdom and Europe, this concept has been expanded further to include accelerated fractionation which employs multiple daily fractions given over a shorter overall period, which

overcomes tumor proliferation during radiotherapy. In a major randomized trial conducted using continuous hyperfractionated accelerated radiation therapy, 563 patients were randomized to once a day vs. three time a day radiotherapy and in all subgroup of patients statistically significant superior survival was identified with three times a day radiotherapy.[9] These trials suggest that one way of optimizing radiation therapy in these patients would be to utilize accelerated fractionation. The strategy utilized in the United States has focused on the use of combination chemo-radiotherapy. With the mature data now available for the landmark Cancer and Leukemia Group B Trial 8433, Dillman and colleagues have reported a doubling of the median survival in patients treated with combination chemo-radiotherapy as compared to those receiving radiotherapy alone (13% vs 6% at 7 years).[10] The cisplatin/vinblastin regimen used in this trial has become the backbone chemotherapeutic approach for NSCLC.

Schaake-Koning, et. al., have attempted to move the use of cisplatin towards its properties as a radiosensitizer. In a three-arm randomized trial they tested radiotherapy alone vs. radiotherapy plus weekly cisplatin vs. radiotherapy plus daily cisplatin and found the use of daily cisplatin to be statistically superior in terms of a survival advantage with 3-year survival of 16% compared to 2% for radiotherapy alone.[11] This conceptual shift has fostered the era of concurrent as opposed to sequential chemo-radiotherapy. In the first positive randomized trial reported to test this principle, Furuse, et al., reported 3-year survival of 27% in 156 patients receiving concurrent radiotherapy as opposed to 13% for 158 patients receiving sequential radiotherapy.[12] Current efforts have focused on merging the value of two or three times radiation therapy with the benefit of chemotherapy. ECOG currently has an ongoing trial that utilizes two cycles of carboplatin and taxol followed by randomization to once vs. three times daily radiotherapy. The advent of carboplatin and taxol has permitted outpatient therapy for most patients with advanced NSCLC. Although this regimen is believed to be better tolerated, in randomized trials it has not been shown to produce a survival advantage. Future therapeutic advances will lie in the identification of newer chemotherapeutic agents with activity in this disease. Several such agents are currently in clinical testing and include the taxenes, camptothecin analogs, newer vinca alkaloids, gemcitabine, etc.

UNIVERSITY OF WISCONSIN EXPERIENCE

At the University of Wisconsin, we recommend concurrent chemotherapy with twice daily thoracic radiotherapy for limited stage SCLC. For patients who can tolerate this regimen, we typically treat with 4 cycles of platinum-based chemotherapy and 45 Gray (Gy) thoracic radiation therapy administered twice daily. If patients do achieve a complete response to therapy, we recommend prophalytic cranial irradiation for prevention of brain metastases. For resectable NSCLC (Stages I, II and IIIA), patients typically undergo definitive surgery. Postoperatively, if the patients are found to have N2 disease, we utilize thoracic radiotherapy to 50-54 Gy for improvement in local control. For more advanced potentially resectable NSCLC (IIIA), a combination of chemotherapy and thoracic radiotherapy to 60 Gy alone or 45 GY followed by surgical resection is typically administered, on a national trial. Finally, for unresectable NSCLC (IIIB), our preference is to enroll patients onto a national Phase III trial utilizing two cycles of carboplatin and taxol followed by randomization to once versus thrice daily thoracic radiotherapy. For patients not eligible for this study, treatment is individualized.

FUTURE STUDIES

Novel approaches focusing on the use of molecular targets recently identified in the laboratory will form the basis of major trials in the future. Several such trials have already been initiated. For example, ECOG is currently testing the value of wild type p53 injection in p53 mutated tumors as a radiosensitizer. Thalidomide, an angiogenesis inhibitor is about to be tested in clinical trials in patients with NSCLC receiving chemo-radiotherapy. We are already testing newer chemotherapeutic agents such as topotecan and gemicitabine as potential radiosensitizers. With the recognition that many neoplastic cells have aberrant growth receptor and growth factor pathways, inhibition of such pathways will form a major target in the future. Several drugs are currently in early phases of development and are likely to be tested in clinical trials shortly.

CONCLUSION

Lung cancer continues to be a commonly encountered tumor with poor prognosis. SCLC is treated with concurrent chemotherapy and thoracic radiotherapy. Early stage NSCLC is managed surgically, while more advanced NSCLC is typically treated with chemotherapy and irradiation.

In the near future, many innovative trials will be explored.

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Update on Prostate Cancer

Mark J. Waples, MD, FACS

Prostate cancer is the most commonly diagnosed malignancy in men and has the second highest rate of mortality behind lung cancer. An incidence rate of 244,000 new cases with 44,000 deaths related to prostate cancer was estimated in 1995. There is greater public awareness of prostate cancer related to an increasing incidence, an aging population and media attention. The etiology of prostate cancer is not particularly well defined. Risk factors include family history, age and race. Prostate cancer is more common and seems to be more aggressive in black men. Conversely, Oriental men have a relatively low rate of prostate cancer that in part may be explained by low dietary fat intake. A brief overview of recent developments in prostate cancer along with speculation regarding future developments will be presented.[1]

Prostate-specific antigen (PSA) has revolutionized the management of prostate cancer. PSA is utilized in early detection, staging and monitoring of prostate cancer patients. The sensitivity of PSA> 4.0 ng/ml for detecting prostate cancer is approximately 80%. However, specificity and positive predictive value for PSA is relatively low with 60% to 80% of patients with PSA values between 4 and 10 proving not to have prostate cancer. A variety of PSA derivatives have been proposed to improve the performance of the test including age-specific PSA, PSA density and PSA velocity. However, there are significant controversies with all of these derivatives. Another approach has been the utilization of new assays of various molecular forms of PSA. Free to total PSA ratio, PSA complexed with alpha-1 antichymotrypsin (cPSA), reverse transcriptase - polymerase chain reaction PSA and a human kallikrein PSA are examples of these new approaches. Further refinement of the PSA derivatives and the new PSA assays will continue to occur resulting in improved performance of this important tumor marker.[2]

Screening for prostate cancer is controversial. Currently, there is no definite evidence that screening for prostate cancer using PSA and digital rectal examination decreases mortality from prostate cancer. Some observers feel PSA screening will go the way of routine chest x-ray screening for lung cancer, whereas others are convinced of the value of prostate cancer screening. There are several natural occurring "experiments" in this country based on different levels of PSA utilization in various geographic areas. Specifically, patients in Utah and the Pacific Northwest have utilized PSA screening to a greater extent than those in Connecticut. Therefore, a comparison of mortality rates from prostate cancer in these regions over time may provide additional insight into the value of screening. A reasonable approach to early detection in an individual patient is to have an informed consent discussion. Present the patient with the risks and benefits of screening with PSA and digital rectal examination and allow these men to decide whether to undergo investigation. Patients with a family history of prostate cancer and African Americans are at high risk for prostate cancer and should be offered early detection beginning at age 40, whereas other men should be offered early detection at age 50. Both the American Cancer Society and the American Urological Association support this approach.[3]

The histologic diagnosis of prostate cancer is most commonly obtained by transrectal ultrasound guided biopsy of the prostate. Other diagnostic modalities consist of transurethral prostatectomy, transperineal biopsy and as an "incidental" diagnosis at radical cystoprostatectomy performed for bladder cancer. Indications for transrectal ultrasound guided biopsy include an elevated PSA or abnormal digital rectal examination. Transrectal ultrasound guided biopsy of the prostate is carried out under local anesthesia with sampling of all ultrasound and digital rectal examination abnormal areas. Additionally, patients with an elevated PSA undergo systematic sampling of the prostate. Historically, this has involved "sextant" biopsy of the prostate including bilateral sampling of the base, mid-gland and apex of the prostate.

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However, recent literature has suggested the need for a greater number of biopsies as well as sampling of the deeper zones of the prostate with a variety of new biopsy arrays being advocated. Preparation for transrectal ultrasound guided biopsy includes an enema and a fluoroquinolone antibiotic. The pathologist plays a critical role in patients with prostate cancer both in making the diagnosis and assigning a Gleason grade to the tumor. The Gleason grade, along with PSA and clinical stage, provides a basis for predicting the behavior of the cancer. Prostatic intra-epithelial neoplasia is a pre-malignant condition that when present on needle biopsy necessitates careful follow-up.[4]

The need for metatastatic work-up in patients with clinically localized prostate cancer has also evolved recently. Traditionally, patients with prostate cancer were staged with abdominal/pelvic CT and nuclear medicine bone scans. Numerous articles currently support omitting these studies in patients with PSA <10 and Gleason score <7 tumors, and other experts suggesting even higher limits for PSA and Gleason score before obtaining imaging studies. MRI imaging of the prostate as a method of detecting local extension is not currently widely utilized due to insufficient sensitivity and specificity. The "Tumor, Nodes, Metastasis" (T, N, M) nomenclature has recently replaced the historical "A, B, C, D" staging system. Stage T1c is a particularly important stage of prostate cancer designating disease detected in patients with a normal digital rectal exam but an elevated PSA. Stage T1a and T1b corresponds to A1 and A2 disease detected on transurethral prostatectomy. Stage T2 disease refers to disease detected by abnormal digital rectal examination, and T3 disease reflects locally advanced prostate cancer (seminal vesical or extraprostatic invasion).[5]

Management of prostate cancer depends on both disease parameters (grade, PSA, stage) and patient characteristics (age, co-morbidities, familial longevity, and patient preference). Observation, radical prostatectomy, external beam radiation therapy and transperineal radioactive seed implantation are all options for patients with disease localized to the prostate gland. Additionally, the availability of lutienizing hormone releasing hormone agonists (lupron, zoladex) allows for temporary medical "orchiectomy" and combination therapy. For example, neoadjuvant hormonal therapy prior to external beam radiation therapy for locally advanced (stage T3) prostate cancer has been demonstrated to improve disease control. Conversely, neoadjuvant hormonal therapy prior to radical prostatectomy does not seem to improve disease control.[6]

As compared to breast cancer, there are no prospective randomized studies comparing the various options for managing localized prostate cancer. The American College of Surgeons has proposed a prospective randomized trial comparing seed implantation (brachytherapy) and radical prostatectomy, but patient accrual will likely prove difficult. Seed implantation and conformal external beam radiation therapy are relatively new treatments that are being increasingly utilized. However, there is an absence of long-term multi-institution follow-up for these new modalities. D'Amico in a retrospective study suggested seed implant was inferior to radical prostatectomy and external radiation in intermediate and high-risk prostate cancer patients. Urinary bother symptoms and erectile dysfunction are two potential quality-of-life side effects associated with both radiation and surgical therapy for prostate cancer. Radical prostatectomy outcomes have been improved by nerve sparing approaches, which in select patients allows preservation of erectile function, and clinical pathways that have shortened hospital stays. Radical prostatectomy is associated with a greater than 85% cure rate when the cancer is organ confined, but patients with extracapsular disease and seminal vesical invasion are at higher risk of recurrence. In my opinion, radical prostatectomy is the "gold standard" treatment for localized prostate cancer against which other modalities must be measured both in terms of freedom from disease and side effects.[7]

Hormonal therapy is the primary treatment available for metastatic prostate cancer. Controversies involving hormonal therapy include early versus delayed therapy, utilization of peripheral androgen blockers to provide total androgen ablation, and quality-of-life side effects of hormonal therapy (e.g. osteoporosis, psychological changes, erectile dysfunction and hot flashes). There is a desperate need for new modalities to treat advanced disease with current research directed at gene therapy and new cytotoxic approaches. As with the other areas of prostate cancer discussed above, significant advances are needed and anticipated over the next several years.[8]

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Guidelines for Colorectal Cancer in 1999

Andy Anderson, MD

INTRODUCTION

In 1999, it is estimated that 2,500 Wisconsin residents will be newly diagnosed with colorectal cancer. 1,100 will die from colorectal cancer, accounting for approximately 10% of cancer deaths in Wisconsin. Men are more likely than women to develop colorectal cancer and African Americans have a higher incidence and mortality rate.[1]

SCREENING

Colorectal cancer is preventable through early detection of polyps, and all individuals should be screened starting at 50 years of age. High-risk patients such as those having a family history of colorectal cancer in a first-degree relative should be screened earlier. Randomized controlled trials have demonstrated a significant reduction in colorectal cancer mortality by screening with annual fecal occult blood testing (FOBT).[2–4] Other methods of screening the general population include digital rectal exam, flexible sigmoidoscopy, barium enema and colonoscopy.[5–7] The American Cancer Society recommendations outlined in Table 1 provide clear options for screening. The risks and benefits as well as the costs of these tests will factor into patient/physician decision-making on how to best screen. Colonoscopy as a primary screening method has a higher sensitivity than fecal occult blood testing but has a higher overall cost and has the up-front risk of perforation (1/1000) and mortality (1/10000) in potentially otherwise healthy individuals.[8] The cost per added year of life for colorectal cancer screening with either FOBT or colonoscopy likely is comparable to mammography screening.[6] Medicare covers as a benefit FOBT or sigmoidoscopy for average risk patients and colonoscopy for high risk patients.

MODIFIABLE RISK FACTORS

Diet may play a role in colorectal cancer prevention. Tobacco use, a diet high in fat and chronic constipation each may increase risk and taking a multivitamin daily may be beneficial. A recent randomized, controlled trial found no benefit from fiber intake.[9] In general, eating a well-balanced diet and getting regular exercise should be recommended for all patients.

PROGNOSIS AND MANAGEMENT

When colorectal cancer is detected in early stages, 5-year survival is as high as 91%. After regional spread to lymph nodes of adjacent organs, 5-year survival drops to 66%. With distant metastases, survival is only 9%.[1] Colorectal cancer is treated in its early stages by surgical resection. Depending on the degree of invasion and involvement of adjacent organs, chemotherapy and radiation therapy may be used as adjuvant treatment.

CONCLUSION

All Wisconsin residents should be screened regularly by their physicians for colorectal cancer beginning at the age of 50. Only about 20% of patients are being screened currently.[10] Future areas of study in Wisconsin include assessment of patient and physician attitudes about colorectal cancer screening and determination of the manpower available to perform colonoscopy.

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Table 1: American Cancer Society Guidelines for Screening and Surveillance for Early Detection of Colorectal Polyps and Cancer*

Risk Category	Recommendation†	Age to Begin	Interval
	Average Risk		
All people 50 years or older who are not in the categories below	One of the following: FOBT plus flexible sigmoidoscopy‡ or TCE¶	Age 50 Age 50	FOBT every year and flexible sigmoidoscopy every 5 y; Colonoscopy every 10 y or DCBE every 5-10y
	Moderate Risk		
People with single, small (<1cm) adenomatous polyps	Colonoscopy	At time of initial polyp diagnosis	TCE within 3 y after initial polyp removal; if normal as per average risk recommendations (above)
People with large (≥1 cm) or multiple adenomatous polyps of any size	Colonoscopy	At time of initial polyp diagnosis	TCE within 3 y after initial polyp removal; if normal TCE every 5 y
Personal history or curative-intent resection of colorectal cancer	TCE§	Within 1 y after resection	If normal, TCE in 3 y; if still normal, TCE every 5 y
Colorectal cancer or adenomatous polyps in first-degree relative younger than 60 y or in two or more first-degree relatives of any age	TCE	Age 40 or 10 y before the youngest case in the family, whichever is earlier	Every 5 y
Colorectal cancer in other relatives (not included above)	As per average risk recommendations (above); may consider beginning screening before age 50		
	High Risk		
Family history of familial adenomatous polyposis	Early surveillance with endoscopy, counseling to consider genetic testing, and referral to a specialty center	Puberty	If genetic testing positive or polyposis confirmed, consider colectomy; otherwise, endoscopy every 1–2 y
Family history of hereditary non-polyposis colon cancer	Colonoscopy and counseling to consider genetic testing	Age 21	If genetic test positive or if patient has not had genetic testing, colonoscopy every 2 y until age 40, then every year
Inflammatory bowel disease	Colonscopies with biopsies for dysplasia	8 y after the start of pancolitis; 12-15 y after the start of left sided colitis	Every 1–2 y

*Approximately 70–80% of cases are from average-risk individuals, approximately 15–20% are from moderate-risk individuals, and 5–10% are from high-risk individuals.

†Digital rectal examination should be done at the time of each sigmoidoscopy, colonoscopy, or DCBE.

‡Annual FOBT has been shown to reduce mortality from colorectal cancer, so it is preferable to no screening; however, the ACS recommends that annual FOBT be accompanied by flexible sigmoidoscopy to further reduce the risk of colorectal cancer mortality.

¶TCE indicates either colonoscopy or DCBE. The choice of procedure should depend on the medical status of the patient and the relative quality of the medical examinations available in a specific community. Flexible sigmoidoscopy should be performed in those instances in which the rectosigmoid colon is not well visualized by DCBE. DCBE would be performed when the entire colon has not been adequately evaluated by colonoscopy.

§This assumes that a perioperative TCE was done.

DCBE = double-contrast barium enema; FOBT = fecal occult blood testing; TCE = total colon examination; y = years.

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Sentinel Lymph Node Biopsy in Patients with Breast Cancer

Wendy Mikkelson, MD

Standard local treatment of invasive breast cancer today entails either a modified radical mastectomy or breast conservation, which consists of "lumpectomy," axillary dissection and postoperative radiation. In general, women tolerate the surgery well, usually going home that day or within one to two days. The most problematic part of breast cancer surgery is not the "breast portion," but the axillary dissection. There is a risk of lymphedema, motor nerve injury, paresthesias to the outer upper arm and decreased range of motion to that arm and shoulder that can require physical therapy to resolve.

These complications, while not life-threatening, are significant. The presence or absence of lymph node metastases is still the most important prognostic factor known, along with tumor size and histology. Sentinel node biopsy is a technique developed to obtain the same information with less morbidity and expense.

Intraoperative lymph node mapping and biopsy was used by Morton and others to detect lymph node involvement with melanoma.[1] The idea is to identify the first lymph node that drains the lymph from around the tumor. If the sentinel node or nodes do not have any metastases, then the rest of the lymph node basin should not contain metastases either. The technique has been extrapolated to stage breast cancer patients as well.

There are two means of locating sentinel nodes at this time. One is to use lymphazurin, a vital blue dye, that is injected around the tumor at the time of surgery. The dye is taken up the lymphatics and carried to the sentinel node(s). An incision is made in the axilla and the tissue is spread gently. Often one or more blue tendrils are noted; these are the lymphatics. Tracing these blue lymphatics leads to one or more blue lymph nodes. These are the sentinel nodes. Giuliano published one of the earliest experiences with detecting sentinel nodes in breast cancer patients.[2] Using only blue dye, sentinel nodes were identified in 65% of this first series and accurately predicted the axillary node status in 96% of the cases. Experience improved results, and Guilano reported that in his more recent 100 patients who have undergone sentinel node dissection followed by axillary dissection, 93% of patients had an axillary node identified as a sentinel node and the false negative rate was 2%.[3]

Another method of detecting sentinel lymph nodes is to use a radioactive tracer. Technetium sulfur colloid is injected around the tumor site several hours before surgery. The patient is scanned to see if any "hot spots" light up, and these are marked for the surgeon. At the time of the axillary dissection, the axilla is scanned with a "geiger counter type" gamma probe, to check for any "hot spots." Dissection to remove any lymph nodes at this location yields the sentinel node, if the node is high in radioactive counts after it is excised. Krag et al, demonstrated that this technique could also identify sentinel nodes 90% of the time with a low false negative rate.[4,5]

Whether to use either or both of these methods to detect sentinel nodes is somewhat controversial at this time, but most centers publishing data on efficiency of locating the sentinel nodes show that the most consistent and best results are with using both techniques simultaneously.[6,7]

In spite of refinements of these techniques, there is still a learning curve for every individual surgeon. The number of cases each surgeon should do with both sentinel node biopsy and axillary dissection before going to sentinel node biopsy alone is being bandied about nationally, but the consensus seems to be between 30 to 50 cases. What has truly validated this technique is that in the cases where axillary metastases exist, the sentinel node is often the only lymph node that is shown to contain metastases. In Giuliano's series, the sentinel node was the only node with tumor in 73% of the cases with pathological-ly positive axillary lymph nodes.[1]

One of the major benefits of the sentinel node biopsy technique is that the woman is more accurately staged. In a typical lymph node dissection, 10–25 lymph nodes are removed. The pathologist bivalves the lymph node and one slide is prepared with an H&E stain. Sentinel nodes are fewer in number. Usually 1–4 are found. These are examined much more closely, often with a frozen section, three permanent cuts, and one immuno-

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histochemical (keratin) stain. The latter is very sensitive in detecting small metastases. As a result, micrometastases are being found in women who would otherwise have been judged to have negative axillas. Some centers are looking into using PCR (Polymerase Chain Reaction) techniques on sentinel nodes, which could be even more sensitive. In the past it was thought that micrometastases did not worsen a breast cancer patient's prognosis, but there are some reports that indicate these women do have a worse outcome than women with truly negative nodes.[8]

Sentinel node biopsy is a technique that can potentially decrease the morbidity of surgically staging the breast cancer patient, as well as increasing the accuracy of that staging. It may soon become the standard of care for women who are diagnosed with invasive breast cancer. Every surgeon utilizing this technique, however, needs to verify that it is accurate in his or her experience, before offering sentinel node biopsy to a patient without confirmatory axillary dissection.

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Breast Cancer Mortality Continues to Decline in Wisconsin

Tamara Cherney, DVM, MS, and Patrick Remington, MD, MPH

ABSTRACT

Evidence from clinical trials suggests that increasing the use of mammography will lead to declines in breast cancer mortality. We analyzed trends in age-adjusted and age-specific breast cancer mortality in Wisconsin from 1979 to 1996. From 1979 to 1990, age-adjusted mortality rates among women of all ages increased about 0.7% per year, a result primarily of increasing rates among women 65 years of age and older. Since 1990, rates have decreased 3.4% per year. These data suggest that mammography is effective in reducing breast cancer mortality in the state. Wisconsin should reach its Year 2000 objective of reducing breast cancer mortality.

INTRODUCTION

Current research suggests that full implementation of breast cancer early detection methods such as mammography screening, self-breast exam, and clinical breast exam, could reduce breast cancer mortality by 30%.[1,2] An article appearing in the October 1995 issue of the *Wisconsin Medical Journal* reported that age-adjusted breast cancer mortality rates peaked in 1990, and then declined 10% through 1994.[3] It was speculated that this decline was early evidence of a population-wide benefit of mammography in the state.[3-5] The purpose of this paper is to explore the trend in breast cancer mortality in Wisconsin women from 1979 to 1996 and to determine whether the previous decline in breast cancer mortality has continued.

METHODS

Data on breast cancer mortality (ICD-9 174 to 174.9) among Wisconsin women from 1979 to 1996 were obtained from Centers for Disease Control (CDC) Wonder, an on-line electronic link to the CDC's database library. All age adjusted rates are adjusted to the 1990 Wisconsin female population.

To demonstrate the trend in breast cancer mortality, a regression line was developed for the years 1979 through 1996, using a third order polynomial regression, available in Excel Analysis Tools Version 5.0. Inspection of this trend showed two distinct trends in breast cancer mortality: increasing from 1979 to 1990, and decreasing from 1990 to 1996. Therefore, we determined estimated annual percent change for age-adjusted rates, and by 20-year age groups. The annual percent change was calculated by fitting a regression line to the natural logarithm of the rates (r) using calendar year as a regressor variable (i.e. $y = mx + b$ where $y = \ln r$ and x = calendar year). The annual percent change = $(e^m - 1)$.

RESULTS

The age-adjusted mortality rates increased slightly from 1979 through 1990, and then decreased from 1990 to 1996 (table 1, figure 1). To better understand this trend, the age-adjusted breast cancer mortality will be discussed for the time periods of 1979 to 1990 and 1990 to 1996.

From 1979 to 1990, age-adjusted breast cancer mortality rates increased approximately .7% per year (34.1 to 37.0 per 100,000) (Table 1). The trends during this time period varied by age group, with a slight decrease among women 25 to 64 years of age and increases among women 65 years of age and older (Table 2, Figure 2).

From 1990 to 1996, age-adjusted breast cancer rates declined approximately 3.4% per year (37.0 to 30.1 per 100,000) (Table 1). All four age groups; 25–44 years, 45–64 years, 65–84 years, and 85+ years experienced an overall decrease in breast cancer mortality from 1990 to 1996 (Table 2, Figure 2). The largest decrease in breast cancer mortality during this time period—3.8% per year—was seen in the 45 to 64 year age group.

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DISCUSSION

This study demonstrates that the earlier decline seen in breast cancer mortality is continuing. It appears likely that Wisconsin will exceed the goals for breast cancer mortality set forth in the *Healthier People in Wisconsin —A Public Health Agenda for the Year 2000* to reduce the age-adjusted breast cancer mortality by 20%.[6] As of 1996, the rate was 14% lower than the 1985 rate. Despite this overall progress, however, there are marked differences by age, race and time period.[7]

Women in the 45–64 year group have experienced consistent declines in the age-adjusted breast cancer mortality rates throughout the entire study period of 1979 to 1996, with most of this decrease occurring from 1990 to 1996. Several factors may have contributed to the observed decline in breast cancer mortality. The decline parallels increases in the use of mammography, as promoted by the American Cancer Society (ACS), National Cancer Institute (NCI), and other groups.[8,9] In Wisconsin, mammography use has increased significantly since the mid 1980's.[5] The annual number of mammograms performed in Wisconsin increased 17-fold from 1980 to 1993.[10] In 1987, 52% of women over 40 reported ever having a mammogram. By 1992, this number had increased to 77%, a relative increase of 32%.[2] Additionally, promotional campaigns through various communication channels have increased the public's awareness of breast cancer. Finally, advances in the treatment of breast cancer may have contributed to the decline seen in breast cancer mortality.[11]

For women older than 65 years of age, breast cancer mortality increased up to 1990 and then decreased thereafter. The reasons for increase during the 1980s are not known. The declines since 1990 are most likely a result of the increased use of mammography during the 1980s. The ACS and the NCI now advocate yearly screening mammography for older women which may reflect, in part, changing attitudes, by professional groups, as to the benefits of mammography screening in older women.[7,8] Mammography screening is still underutilized in older women $\geq$ 75 years for many reasons.[12] The full benefits of early breast cancer detection through screening mammography in older women may not have been realized.

It is encouraging that breast cancer mortality has declined for women of all ages since 1990. For the downward trend in breast cancer mortality to continue, several factors need to be considered. Work toward full implementation of mammography screening guidelines needs to continue. It has been estimated that it will take 5 to 10 years before the full effect of mammography screening manifests itself.[2] Using this 5 to 10 year estimate, it is possible that the full effect of mammography screening has not yet been realized. It is equally possible that the decline in age-adjusted cancer mortality rates will start to plateau. Also, results presented here do not depict variations in breast cancer mortality known to exist among different groups of women. There are many groups of Wisconsin women that remain under-served as it relates to health care services. Breast cancer incidence and mortality rates do differ among women for various reasons such as age, race, social economic status, education, and geographic place of residence.[13-17]

This paper shows that since peaking in 1990, the decline in breast cancer mortality has continued through 1996 for Wisconsin women. To sustain the decrease, the differences in breast cancer mortality among the various groups of women, and their

Table 1: Breast Cancer Mortality Among Wisconsin Women From 1979-1996

Year	Deaths	Crude Rate	Age-Adjusted Rate*
1979	749	31.5	34.1
1980	774	32.2	34.3
1981	797	33.0	35.1
1982	828	34.3	36.2
1983	850	35.2	36.4
1984	843	34.8	35.9
1985	831	34.2	35.0
1986	856	35.2	35.9
1987	849	34.8	35.2
1988	869	35.3	35.5
1989	884	35.6	35.6
1990	924	37.0	37.0
1991	918	36.3	36.0
1992	860	33.8	33.4
1993	911	35.4	34.7
1994	884	34.1	33.3
1995	876	33.6	32.7
1996	815	31.1	30.1

*Age-Adjusted to the 1990 Wisconsin female population

Table 2: Age-adjusted Mortality Rates for 1979, 1990, and 1996 by 20-Year Age Group

Age Group	Rate 1979*	Rate 1990*	Rate 1996*
All Ages	34.1	37.0	30.1
25-44 years	9.6	9.1	8.1
45-64 years	62.9	60.5	48.0
65-84 years	118.1	133.6	115.8
85+ years	184.7	254.7	210.9

*Age-adjusted mortality rate

Figure 1. Age-adjusted trend in breast cancer mortality for Wisconsin women

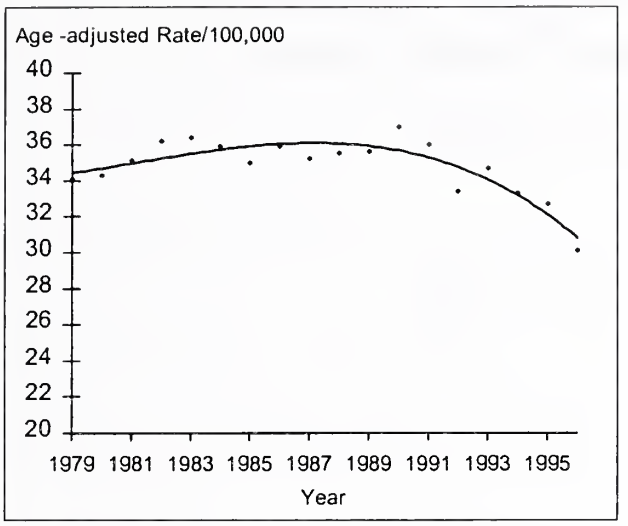
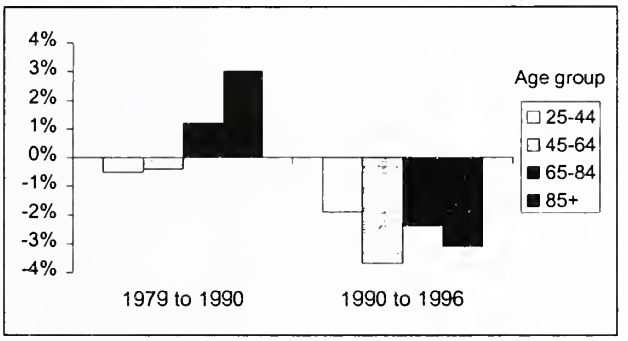


Figure 2. Annual percent change in age-specific breast cancer mortality rates from 1979 to 1990 and from 1990 to 1996.



reasons, will need to be considered as we continually evaluate and improve breast cancer control and prevention strategies.

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Breast Conservation Therapy for Breast Cancer Treatment in Brown County

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ABSTRACT

The Northeast Wisconsin Cancer Registry and a patient survey was utilized to examine the use of breast conservation surgery in Brown County between 1991 and 1997 and the factors influencing patients' treatment decisions. In all patients, the rate of breast conservation rose from approximately 30% to 44% during that time period. The percent of all patients with stage 0, I or II breast cancer who were potential candidates for breast conservation based on their stage rose from 89% in 1991 to 96% in 1997. The percent of Stage I and Stage II patients who underwent breast conserving surgery rose from 29% in 1991 to 38% in 1997. There was a higher use of breast conserving surgery in younger women (approximately 50% in age 35 to 49 years old in 1997) compared to women older than 62 (33% in 1997). Breast conservation surgery was used in 47% of patients with AJCC T1 (primary tumors less than 2 cm) and in 25% of patients with T2 lesions (primary tumors 2 to 5 cm); and more often in node negative than in node positive patients (51% vs. 20%). A patient survey revealed that a majority of patients felt that their surgeon's recommendation was the most important influence in making their surgical decision and that their fear of cancer recurrence most strongly influenced their decision on a personal level. Fewer than half of the women were referred to a medical oncologist, radiation oncologist, plastic surgeon or second opinion surgeon prior to surgery. Breast conservative treatment is increasingly utilized in Northeastern Wisconsin and women depend on their surgeon to give them clear, complete, non-biased information balanced with emotional support during the time when they are asked to make the complex decision of the type of breast cancer surgery they desire.

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INTRODUCTION

"I would have felt much better about everything had I received information on pros/cons to surgery and also information on the different types of reconstruction at the time that I was told that I needed surgery. It is so hard to make decisions without adequate information and seems like most of the health care professionals feel bad about discussing options and giving out information." (quote from breast cancer patient)

In 1998, the Multidisciplinary Cancer Committee of St. Vincent Hospital sought to assess the patterns and perceptions of breast cancer care in the local community. Four pieces of information were used to examine breast cancer care: (1) breast cancer conservation rates, (2) local recurrence rates for breast conservation and mastectomy patients, (3) breast cancer survival rates, and (4) a breast cancer patient survey. This information on local patterns was then compared to national published data.

The Brown County area encompasses the urban population of Green Bay (approximate population of 200000) and includes the surrounding rural areas (containing approximately another 300000 people in 23 counties). Green Bay has three hospitals (St. Vincent Hospital, Bellin Hospital and St. Mary's Hospital). A joint cancer registry (the Northeast Wisconsin Cancer Registry) was established in 1991 and serves all three hospitals. There are 21 general surgeons in the immediate Green Bay area. The median year of Board certification of the surgeons is 1987. There are six medical oncologists and five radiation oncologists. There are three plastic and reconstructive surgeons who perform breast reconstruction. The cancer program is accredited by the American College of Surgeons.

METHODS

This research utilized both the computerized records from the Northeast Wisconsin Cancer Registry as well as a survey sent to patients recently diagnosed with breast cancer asking them how they made their treatment decision and factors that they felt influenced their treatment decisions.

To determine the use of breast conserving surgical treatment for early stage breast cancer, computerized records from the Northeast Wisconsin Cancer Registry (NWCR) were queried for the years 1991 to 1997 to identify female patients diagnosed and treated with curative intent for breast cancer. Information extracted included definitive type of surgery (mastectomy, lumpectomy or partial mastectomy), American Joint Committee on Cancer TNM (Tumor, regional lymph node involvement, and distant metastases) stage, age at diagnosis, and treatment outcome. Stage 0 patients have carcinoma in situ (intraductal carcinoma). Stage I patients have T1 tumors (2 cm or less in greatest dimension) with no nodal metastases and Stage II patients have either metastases to movable ipsilateral axillary lymph nodes or larger primary tumors (2-5 cm). Percent Breast Conserving Surgery (BCS) was calculated as the number of patients with lumpectomies or partial mastectomies divided by the annual total number of patients treated surgically. For analysis, patients were separated into AJCC TNM stage as reported in the registry and divided into three age groups: 35 to 49 years old, 50 to 61 years old and over 62 years old.

Local recurrence rates and survival was determined for patients treated between 1991 and 1993 who have been at risk for local recurrence or death for a minimum of four years. Local recurrence rates were calculated by dividing the number of patients found to have local recurrence on follow-up by the number of patients treated surgically that year with current follow-up. (Lost to follow-up rates for the breast conserving surgeries is 4% and for the mastectomy group 9%). Survival was calculated by the actuarial method and was compared to published National Cancer Data Base information from 1989.[1]

In addition to the above, a patient survey was sent out to all female breast cancer patients diagnosed between January 1, 1996 and December 31, 1997. A total of 495 surveys were mailed; 227 were returned and tabulated. The survey asked "What influenced your surgery decision?" and patients were asked to rank the following in the order of their importance (No. I = most important, etc.): recommended by surgeon, family doctor, oncologist, family, friends, significant other, American Cancer Society, literature, Internet, media (magazines, radio, TV, etc.), other.

They were also asked, "On a personal level, what things were important to you in making your surgery decision?" and were asked to rank the following in their order of importance: final cosmetic look, time involved for recovery, length of time for treatment, fear of discomfort, fear of cancer recurrence, cost distance to treatment center, spiritual/religious beliefs, other.

Finally, patients were asked "what other doctors were seen" and whether they saw that physician prior to or after surgery. They were given the following options: medical oncologist, radiation oncologist, plastic surgeon, or second opinion surgeon.

Table 1. The Rising Use of Breast Conserving Surgery (BCS) in Brown County (All Stages)

Year	No. pts BCS	Total No. breast ca pts (all stages)	% BCS
1991	59	198	29.8
1992	58	208	27.9
1993	49	189	25.9
1994	70	180	38.9
1995	98	228	43.0
1996	100	239	41.8
1997	108	244	44.3

Table 2. Distribution of Breast Cancer Patients by Stage

Year	Stage 0	Stage I	Stage IIA	Stage IIB	Total # Stage 0-II	%Stage 0-II pts
1991	26	83	47	21	177	89
1992	25	69	57	26	177	85
1993	13	77	56	22	168	89
1994	26	83	36	16	161	89
1995	45	91	46	28	210	92
1996	41	102	55	19	217	91
1997	49	107	53	25	234	96

Table 3. Percent BCS by Year

Year	# BCS pts Stage 0	# BCS pts Stages I, II	% BCS Stage I, II	% BCS 0, I, II
1991	11	55	29	31
1992	15	38	25	30
1993	6	39	25	27
1994	22	45	33	42
1995	29	67	41	46
1996	31	67	38	45
1997	36	70	38	45

RESULTS

Results of the cancer registry query and responses to the survey were tabulated and are summarized in Tables 1 through 8 and Figures 1 and 2.

Local Recurrence and Survival: Patients treated between 1991 and 1993 had a local recurrence rate of 3% with a minimum follow-up of 4 years. The rate was identical whether patients underwent breast conserving surgery or mastectomy. The overall actuarial survival for the entire group of breast cancer patients was calculated. At 5 years, survival for Stage 0 and I cases was 88%, Stage IIA 79% and Stage IIB

Table 4. BCS Ages 35-49 years old

Year	# Stage 0 pts BCS	# Stage I, II pts BCS	% BCS Stage I, II	% BCS Stage 0,I,II
1991	7	14	45	48
1992	8	11	38	47
1993	2	10	34	39
1994	6	8	36	50
1995	8	19	50	55
1996	8	20	56	62
1997	9	20	49	55

Table 5. BCS Age Group 50-61 years old

Year	No. BCS Stage 0 pts	No. BCS Stage I,II pts	% BCS Stage I, II	% BCS Stage 0,I,II
1991	2	12	38	38
1992	5	5	21	31
1993	0	11	24	22
1994	6	16	48	56
1995	8	16	39	46
1996	12	16	36	47
1997	14	20	38	47

Table 6. BCS Age Group 62+ years old

Year	Na. BCS Stage 0 pts	No. BCS Stage I,II pts	% BCS Stage I, II	% BCS Stage 0,I,II
1991	2	18	20	21
1992	4	22	22	24
1993	4	18	23	25
1994	10	21	26	33
1995	13	32	37	41
1996	11	31	32	38
1997	13	30	33	39

Table 7. %BCS by T stage and Nadol Stotus (1997 data anly)

	%BCS
T1	47%
T2	25%
Nade negotive	51%
Node positive	20%

Table 8. Breost Concer Patient Survey - Other Doctors Seen.

	Befare Surgery	After Surgery
Medical Oncalagist	84	132
Rodiotion Oncalogist	56	81
Plostic Surgeon	40	31
Second Opinion Surgeon	39	8

was 66%. This compares favorably with the National Cancer Databank data from 1989.[1]

DISCUSSION

In 1999, there will be an estimated 176,300 new cases of breast cancer diagnosed in the United States with 3400 of those cases diagnosed in Wisconsin.[2] A high percentage of these women will present in early stages of the disease, thus potentially eligible for breast conserving treatment. In 1990, the National Institutes of Health held a Consensus Development Conference which concluded that breast conserving surgery was appropriate for most women with early invasive breast cancer.[3] Recently, there have been reports of underutilization of breast conserving therapy,[4] and various factors have been examined for this phenomenon[3] including age,[5,6] race,[7] geographical location,[7,8] education,[9] median income,[10] local community factors and physician attitudes,[11,12] etc. Medical contraindications do not appear to be a major factor in this underutilization.[13] This report reviews the use of breast conserving therapy for women with early stage breast cancer in a community setting in Northeastern Wisconsin following publication of the consensus conference findings in 1991 until 1997. It also examines some of the influences women in Northeastern Wisconsin took into account when deciding upon the type of surgery for their breast cancer.

The number of all breast cancer patients in the Northeast Wisconsin Cancer Registry rose slowly between 1991 and 1997 (Table 1) from 198 patients to 244 patients, as did the percent of patients undergoing breast conserving surgery (from approximately 30% in 1991 to 44 % in 1997). Breast conservation surgery, as outlined in the National Institutes of Health Consensus Statement[3] consisting of lumpectomy or partial mastectomy, was felt to be appropriate for patients with invasive breast cancer, Stages I or II. The number of patients in the Northeast Wisconsin Cancer Registry with Stage I or II breast cancer rose from 151 patients in 1991 to 185 patients in 1997 (Table 3). With the increased use of mammographic screening, there has been an increased number of women identified with Stage 0 disease (Table 2) going from 26 patients in 1991 to 49 patients in 1997. Although no consensus currently exists for the optimal management of these patients and mastectomy has been the historical standard, lumpectomy with or without radiation is considered a valid treatment option.[4] Therefore, if Stage 0 patients are included in the calculations, by 1997 96% of the 244 patients diagnosed with breast cancer were potential candidates for breast conserving surgery

based on their stage. Of these potential candidates, 38% of Stage I and II patients chose to undergo breast conserving surgery (Table 3) and 45 % of Stages 0, I and II patients. This has increased from approximately 30% in 1991. Doctor Morrow recently reported on an American College of Surgeons Study of 17,931 women with Stage I or II breast cancer treated across the country in 1994.[4] In that study, 44.1% of women had breast conservation. This is similar to the 38% seen in Northeastern Wisconsin. In the "Standards for Breast Conservation Treatment" adopted by the American College of Radiology and endorsed by the American College of Surgeons,[21] there are absolute and relative contraindications to the use of breast conservation. These include:

1. First and second trimester pregnancy are an absolute contraindication to the use of breast irradiation. However, in many cases, it may be possible to perform breast-conserving surgery in the third trimester and treat the patient with irradiation after delivery.
2. Women with two or more gross malignancies situated in separate quadrants of the breast or with diffuse malignant or indeterminate-appearing microcalcifications are not considered candidates for breast conservation treatment.
3. A history of prior therapeutic irradiation to the breast region which would require re-treatment to an excessively high total radiation dose to a significant volume is another absolute contraindication.
4. A history of collagen vascular disease is a relative contraindication to breast conservation treatment because published reports indicate that such patients tolerate irradiation poorly.
5. Tumor size is not an absolute contraindication to breast conservation treatment, although there is little published experience in treating patients with tumor sizes greater than 4 to 5 centimeters. However, a relative contraindication is the presence of a large tumor in a small breast in which an adequate resection would result in significant cosmetic alteration.
6. Breast size can be a relative contraindication. Treatment by irradiation of women with large or pendulous breasts is feasible if there is sufficient expertise to insure the reproducibility of patient setup and the availability of $\geq$ 6 MeV photon beam irradiation to obtain adequate dose homogeneity.
7. The location of the tumor in the breast may be a consideration in the choice of local treatment. In a patient with a tumor that is directly beneath the nipple, an adequate resection usually involves removal of all or part of the nipple areola complex. Whether this is preferable to mastectomy needs to be assessed by the patient and her physician.

Although there are these contraindications to breast conserving surgery, there are considerable numbers of women who are candidates not undergoing breast conservation treatment. The reasons for this apparent underutilization is unknown but various factors have been looked at in the literature.[11,13] Articles published from the states of Washington,[9,11] Minnesota,[16] Michigan,[5] and Massachusetts[16] show that county of residence (urban or rural), age, stage, education, and median income have all been shown to possibly influence the rate of breast conserving surgery. Even choices made by public figures have been shown to play a role. The rate of breast conserving surgery dropped in the fourth quarter of 1987 after Nancy Reagan chose mastectomy rather than breast conservation.[16] The drop was seen most prominently in women demographically similar to Mrs. Reagan.

Age of the patient at diagnosis has been felt to be a possible factor in treatment selection.[5,6] We examined the effect of age on the use of breast conserving surgery in our population. There was a relatively higher use of breast conserving surgery in younger women (ages 35 to 49) compared to women 62 years or older although there was a rise between 1991 and 1997 in all age groups. In 1991, 45% of patients 35 to 49 years old with Stage I and II breast cancer elected breast conserving surgery while only 20% of women age 62 years or older elected breast conserving surgery. Women older than 62 years with invasive disease have undergone breast conserving surgery increasingly, with a rate rising from 20% to 33% in 1997 (Table 6). Doctor Morrow noted that 47% of the American College of Surgeons patients[4] receiving breast conservation were under the age of 60. The corresponding number in our population is 55% under the age of 62, showing a slightly higher use in older women compared to the national data.

Also examined in the American College of Surgeons report were the influence of T stage and nodal status.[4] When broken down by T stage, the American College of Surgeons data showed 53% with T1 lesions underwent breast conserving surgery versus 33% with T2 lesions. The Brown County data was similar in that 47% of T1 lesions and 25% of T2 lesions in 1997 underwent breast conserving surgery (Table 7). Therefore, women with larger lesions are less likely to undergo breast conserving surgery than women with smaller ones. When broken down by nodal involvement, the American College of Surgeons data[4] showed that 47% of node negative patients

underwent breast conserving surgery while only 32% of node positive patients underwent breast conserving surgery. A similar pattern was seen in the Northeast Wisconsin Cancer Registry data with 51% of node negative and 20% of node positive patients in the registry in 1997 undergoing breast conserving surgery (Table 7).

The treatment decision making process has been looked at by surveys[17] or interviews.[18] Patient preference in treatment is strongly influenced by "people" sources of information rather than written or visual materials. The surgeon is very influential in the patient's decision making process. In a Harvard Medical School study,[15] 74% of women in Minnesota and 62% of women in Massachusetts said they ultimately chose mastectomy because their surgeon recommended it. In studies from North Dakota[19] and California,[17] the surgeon was also identified as the most influential person in the treatment decision. In our patient survey, 192 of 226 respondents who answered the question checked that the recommendation of the surgeon influenced their surgery decision, and 106 patients listed it as the number one most important factor. The second most influential person listed was their family doctor, listed by 80 patients and ranked number one or two by 57 patients. Fifty-nine patients indicated that literature influenced their surgery decision, but the majority listed it as their third or lower factor in making their decision. The internet was listed by 14 as an influence and 19 listed the media. The survey of women in northeastern Wisconsin also sought to address information available to patients as they made their decisions by asking about referrals made prior to surgery. Of 197 patients who responded to the question, 43% stated they saw a medical oncologist, 28% saw a radiation oncologist, 20% saw a plastic surgeon and 20% saw a second opinion surgeon (Table 8). After surgery, 67% saw a medical oncologist, 41% saw a radiation oncologist, 16% saw a plastic surgeon. Therefore less than half of women underwent consultation with an oncologist or plastic surgeon prior to making their surgical treatment decision.

Patients were asked about things on a personal level that were important to them in making their surgery decision. Of 222 patients who responded to that question, 182 stated that fear of cancer recurrence was important and 138 patients listed it as the most important thing to them. This was also seen in a study from California[17] where the surgeon's recommendation and the patient's perception of the chance for cure were the most influential factors affecting the treatment decision. Wisconsin statutes

Figure 1. Breast Cancer Patient Survey – What things were important to you in making your surgery decision?

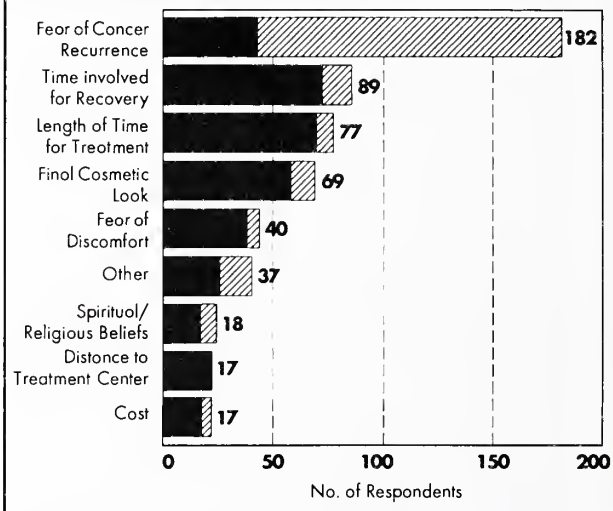
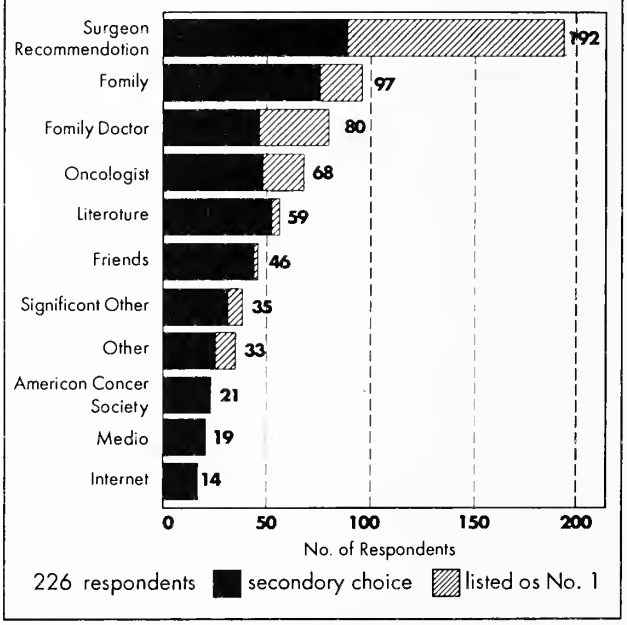


Figure 2. Breast Cancer Patient Survey – What influenced your surgery decision?



mandates that "any physician who treats a patient shall inform the patient about the availability of all alternate, viable medical modes of treatment and about the benefits and risks of these treatments" (Wisconsin statute 448.3). In Wisconsin this is done on an individual physician level. The State of California has mandated by law that all patients undergoing a breast biopsy or who have been diagnosed with breast cancer must be given the booklet entitled, "A Woman's Guide to Breast Cancer Diagnosis and Treatment" developed by the California Department of Health Services.[21] This ensures a more uniform distribution of information.

Since fear of cancer recurrence is a major factor in their decision-making process, women need clear and accurate information that their choice of surgical treatment (if the patient does not have a contraindication to breast conservation) will not affect the chance of cancer recurrence. One patient wrote: "I was dismayed to learn lumpectomy survival rates were at least as high as mastectomy rates." Local communities should confirm that they can meet the national standards. In this study, the local recurrence rate was the same for mastectomy and breast conservation (3%) which is consistent with published data. The overall survival data of all breast cancer patients also was comparable to national published data. These two pieces of information show that when breast conservation surgery is performed in this population, the outcome meets national standards. Local data, such as presented here, should be available to patients as they make their decisions.

In conclusion, this data provides a non-statistical benchmark for the future. It outlines the practice patterns in Northeastern Wisconsin regarding breast cancer treatment and the use of breast conserving surgery as outlined by the National Institutes of Health Consensus Statement. It confirms that treatment in Northeastern Wisconsin conforms to national practices. With an increasing number of women diagnosed with breast cancer in early stages, this study provides information applicable to a large number of women. It documents the increasing use of breast conservation surgery in these patients, but also confirms the apparent underutilization noted by Dr. Morrow. This is particularly seen in larger lesions and patients with positive nodes. It indicates an opportunity to improve the rate of breast conservation surgery by targeting the patient education provided by the surgeon, as this information is very influential to the patient. In the patient survey, many women voiced a need for additional resources available to her at the time she is making the complex, emotionally stressful treatment decision.

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Drug Alert

Risk Factors for Metformin-Associated Lactic Acidosis

Sara J. Beis, RPh, MS, Lorna M. Goshman, RPh, CSPI, and Garret L. Newkirk, RPh

From January 1998 to June 1999, four patients were admitted to our institution from the community with lactic acidosis that developed while they were taking metformin for type 2 diabetes. Though this is a rare event, it is associated with a 50% mortality rate.[1] Unfortunately, in these four cases the mortality rate was 100%. Metformin has a good safety record except in patients with medical conditions that lead to increased lactate production, decreased lactate clearance, or both. Relevant contraindications to the use of the drug, clearly indicated in the prescribing information, were present in three of the four cases at the time the metformin was prescribed (See Table 1). In the fourth case, acute renal failure was the probable trigger of the acidosis. In all instances, lactic acidosis was a major contributing factor to the final outcome.

The descriptions of these four cases at the time of admission follow:

Case 1—A 45-year-old female with type 2 diabetes and liver cirrhosis was admitted with hepatic encephalopathy, aspiration pneumonia, esophageal varices, hypotension, and bacterial sepsis. Admission laboratory results included serum creatinine 1.3 mg/dL, BUN 29 mg/dL, blood lactate 16 mmol/L (normal range 0-2 mmol/L), and elevated lipase and amylase. Pre-admission medications included metformin 500 mg twice daily which had been tolerated well for over 1 year.

Case 2—A 64-year-old male with a history of coronary artery disease, type 2 diabetes, hypertension, and hyperlipidemia was admitted to the hospital with complaints of progressive dyspnea, orthopnea, and cough. Among his medications on admission was metformin 1000 mg twice daily. At baseline the patient had a serum creatinine level of 1.4 mg/dL with a creatinine clearance of 49 ml/min. The patient was diagnosed with pneumonia and treated with antibiotics. Upon admission to the ICU, his serum creatinine had increased to 4.8 mg/dL. Laboratory values at ICU admission were consistent with severe lactic acidosis: lactate 10 mmol/L, anion gap 24 mEq/L, BUN 56 mg/dL, pH 7.04, pCO_2 37, pO_2 56, and potassium 6.5 mEq/L.

Case 3—A 65-year-old white male with a past medical history of diabetes, peripheral vascular disease, and asthma was admitted for increased lethargy and disorientation. The patient was not eating and had a 17 lb. weight loss over the previous week. Medications on admission included enalapril, glyburide 5 mg twice daily, sliding scale insulin, and metformin 850 mg twice daily. On admission the patient was in severe metabolic acidosis with pH 7.28, pCO_2 30, pO_2 81, bicarbonate 13.4 mEq/L, base excess –11.0 mmol/L, anion gap 27 mEq/L, lactate 6.6 mmol/L, blood glucose of 200 mg/dL, serum creatinine 2.1 mg/dL (baseline 1.0 mg/dL), and BUN 70 mg/dL.

Case 4—A 74-year old male with a past medical history of type 2 diabetes, coronary artery disease, congestive heart failure, and anemia was placed on metformin 500 mg three times daily prior to admission. The patient was in renal failure when the metformin was prescribed. Three days later the patient was admitted to the hospital in severe lactic acidosis (lactate 3.1mmol/L, base excess –22.9mmol/L).

DISCUSSION

Metformin may increase serum lactate through conversion of glucose to lactate by the intestinal mucosa and possibly by the inhibition of gluconeogenesis from alanine, pyruvate, and lactate.[1,2,5,6] Although a definite causal relationship between metformin accumulation and severity of lactic acidosis has not been established, factors causing an accumulation of both metformin and lactate can result in lactic acidosis.[2] The liver and kidneys normally process lactate produced by body tissues. Liver dysfunction can lead to lactate accumulation when tissue hypoxia, often due to hypovolemia, leads to increased lactate

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Table 1. Contraindications to Metformin Use[3,4,5]

Renal disease or renal dysfunction which may also result from conditions such as cardiovascular collapse, acute myocardial infarction, and septicemia
Congestive heart failure requiring pharmacological treatment
Temporary discontinuation in patients undergoing radiologic studies involving intravascular administration of iodinated contrast materials
Known hypersensitivity to metformin
Acute or chronic metabolic acidosis, including diabetic ketoacidosis
Cardiac or respiratory insufficiency that is likely to cause hypoxia or reduced peripheral perfusion
Peripheral vascular disease
Liver disease, including chronic alcoholic liver disease

production.[1,2] In Cases 1 and 2, infectious complications resulted in tissue hypoxia that increased lactate production in patients whose ability to clear lactate was compromised by hepatic and renal dysfunction, respectively. In Case 3, dehydration led to hypovolemia in a patient on an ACE inhibitor who developed acute renal failure. In Case 4, the absolute contraindication of pre-existing renal failure should have precluded use of metformin.

Lactic acidosis is a medical emergency. The onset of symptoms of lactic acidosis, including mental status changes and abdominal discomfort, are extremely subtle. Mild, non-specific symptoms are often attributed to a benign cause, or may be ignored entirely. By the time a patient receives medical attention, even heroic measures may be too late to reverse lactic acidosis and prevent death. If the underlying cause of lactic acidosis can be reversed, the lactate will be metabolized and the acidosis will resolve. In the case of metformin, the treatment of choice is discontinuation of metformin followed by immediate hemodialysis to remove the remainder of the drug.

Increasing use of metformin in Type 2 diabetes puts an increasing number of patients at risk for drug-induced lactic acidosis, even though it is a rare complication. When concomitant, serious conditions develop, such as renal impairment, cardiac or respiratory insufficiency, severe infection, liver disease, or alcohol abuse with binge drinking, metformin should be stopped and treatment with insulin initiated.[5] After administration of intravenous contrast media, metformin should be discontinued for 48 hours or until renal function returns to baseline. Patients stabilized on this agent should be counseled to report any of the initial or early symptoms of lactic acidosis such as nausea, vomiting, abdominal discomfort or unusual fatigue to their prescriber and to discontinue the drug immediately. Most importantly, metformin use should be avoided in patients who have known contraindications to the agent.

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Corporate Compliance Programs — Essential to Every Physician's Practice

By Ruth M. Heitz, JD, SMS Associate General Counsel

Overview

Like it or not, every medical office, clinic, laboratory, hospital and health maintenance organization should have a corporate compliance program. It'll save time, money and frustration.

A compliance program is a set of rules developed by a physician's practice group or other entity, designed to promote and improve compliance with state and federal laws. In recent years, the State Medical Society, as well as the American Medical Association and various federal agencies, have all recommended that physicians develop one.[1] Unfortunately, many Wisconsin physicians have failed to do so. Some view the increased emphasis as a fad that will eventually pass, while others believe compliance plans are only for those intentionally committing fraud against the government.

Both views are incorrect. Physicians who have a compliance program have fewer billing and coding errors, and in some cases discovered fraud and abuse that had not previously been apparent to management.

The Government's Anti-Fraud and Abuse Campaign

The federal government, the Department of Justice, in particular, has employed a variety of programs to reduce fraud, abuse and waste in the Medicare and Medicaid programs. In 1997 alone, it's estimated that Medicare and Medicaid anti-fraud activities saved the federal government over $7.5 billion.[2] Consequently, the health care community should anticipate increased scrutiny from government, Medicare carriers, intermediaries and patients.

More recently, federal authorities have worked closely with the American Association of Retired Persons to develop a program entitled "Who Pays? You Pay," which is designed to train Medicare beneficiaries to detect and report irregularities in their physicians' billing. To date, the training sessions have been launched in 31 cities for 10,000 Medicare beneficiaries, and at least one advocacy group in Wisconsin has conducted training sessions. Patients who report their health care providers may be eligible for a $1,000 award. The government has also established a hotline to report possible Medicare violations.

Effective July 1, 1999, all Medicare beneficiaries received an explanation of benefits that informs them that they have the right to request an itemized statement from the medical service provider that details each Medicare item or service. Health care providers must comply within 30 days. If they fail to do so they may be fined $100 per unfulfilled request.

The government has continued to develop new computer claim verification measures, with the capability to check an estimated 2 million items for accuracy, with emphasis placed on reviewing billing codes that have the greatest potential for high use.

We can expect more frequent audits of health care providers' records to decrease fraud, abuse and waste of Medicare and Medicaid resources. The audit may take a variety of forms.

Medicare may elect to perform a one-chart audit. The request is for one record of an Evaluation and Management service. This type of audit measures whether physicians are properly documenting in accordance with Evaluation and Management guidelines. If an error is discovered during the one-chart review, the provider must furnish additional patient records to create a larger sample, which will be used for calculating the amount of any overpayment owed to the government.

Medicare frequently conducts a focused medical review, which is generally a request for eight records. This review examines whether a health care provider has properly coded and billed for services. It also determines whether documents establish the medical necessity for the services and whether they were billed at the proper level. Although the focused medical review is fairly common, the audit of choice by carriers and intermediaries will soon be the consent settlement audit.

The federal government recently allocated money to states including Wisconsin to enable carriers to increase the number of consent settlement audits (informally called "wedge" audits). In wedge audits, carriers and interme-

diaries request a random, non-statistically valid sample of cases (usually 15 records). The carrier or intermediary then conducts an audit to determine the appropriateness of the health care provider's billing and coding of records. Given the increase in resources for these audits, a significant number of Wisconsin health care providers who participate in the Medicare and Medicaid programs are expected to be the subject of them eventually.

Identification and Prosecution of Fraud and Abuse a Joint Effort

Both President Clinton and Attorney General Janet Reno have identified the prosecution of health care fraud as a government priority. Consequently, more resources have been devoted to audits, civil and criminal investigations and prosecutions.

The government has effectively used various laws to pursue health care providers for fraud, abuse and waste of Medicare and Medicaid funds. In a nutshell, these laws prohibit misrepresenting facts in any claim or application for benefits under Medicare or Medicaid. They also prohibit the failure to disclose an event that affects payments to which providers are not lawfully entitled. Substantial penalties, up to three times the overpayment, may be assessed.

The government recently issued a fraud alert regarding potential physician liability for ordering home care and durable medical equipment.[3] The fraud alert encourages physicians not to prescribe services and items as a courtesy to a patient, service provider or medical equipment supplier without determining medically necessity. Audits in this area are likely to increase. Liability may be based on actual knowledge, deliberate ignorance or reckless disregard of the falsity of the information. The government has recovered a lot of money under these laws.

The AMA presented testimony to Congress regarding the Health Care Financing Administration's (HCFA) management of the health care program,[4] citing several examples of the government's overzealous and punitive approach to the reduction of waste in the Medicare and Medicaid programs. One example was an instance of three physicians who felt compelled to stop treating Medicare patients because the local Medicare carrier attempted to recoup thousands of dollars in payments due to differences of opinion regarding appropriate coding and documentation for laboratory tests. At the time that the claims were disputed, HCFA was engaged in a negotiated rulemaking process to determine the rules that would guide the Medicare laboratory test benefit. The AMA made particular note of the fact that HCFA fails to distinguish between "genuine" fraud and legitimate billing issues such as the difference in medical judgment about a level of coding. The AMA raised concern regarding HCFA's post-payment audits. In particular, the AMA criticized the practice of using a small sample of cases to extrapolate hefty fines. Many providers are forced to accept unfair extrapolations to avoid a disruption of their practice and extensive legal bills.

Effective Compliance Program Reduces Potential for Errors and Fraud

The regulations surrounding the Medicare and Medicaid program are complex, which increases the possibility for errors in claim submissions or otherwise violate state and federal health care laws. A health care provider can reduce the possibility of making errors or violating the law by implementing a compliance program. Moreover, if a provider discovers fraud within the organization, the existence of an effective compliance plan may reduce the amount of fines and penalties imposed.

The Office of Inspector General has actively encouraged health care providers to develop compliance plans as an effective tool of preventing fraud, abuse and waste. The agency has developed model compliance manuals for hospitals, home health agencies, laboratories and third-party billing companies. The agency also has developed a draft manual for durable medical equipment, prosthetics, orthotics and supply industry and Medicare+Choice organizations.

The United States Sentencing Commission identified seven essential elements of an effective compliance program, which are:

1. The development of compliance standards and procedures for employees to follow that are reasonably capable of reducing the prospect of criminal conduct.
2. The assignment of the compliance oversight function to a high level individual within the organization.
3. Appropriate screening of employees to avoid delegating discretionary authority to employees who have a propensity to engage in illegal activities.
4. Effective communication of standards to all employees and agents.
5. Reasonable steps to achieve compliance (auditing and monitoring to detect unlawful conduct and appropriate employee training at all levels within the organization).
6. Consistent enforcement of standards through the application of appropriate disciplinary measures.
7. Implement reasonable steps to respond to an offense or violation when it is detected and to prevent a similar occurrence in the future.

The development of a compli-

ance plan is not only a tool heralded by the government but it is also a wise business decision. A compliance program will give an organization an accurate picture of its employees' behavior. It can uncover hidden problems, identify unlawful and unethical behavior and assist personnel to make appropriate decisions. The plan will also lower a provider's financial risk, provide a means for disseminating information regarding changes in government requirements and will encourage employees to report concerns internally rather than externally (to the government or others).

Every compliance plan should incorporate the seven essential elements identified by the United States Sentencing Commission. However, compliance programs will vary from organization to organization depending on its size and specific risk factors.

The first steps in developing a compliance program will be the appointment of a compliance officer or committee and an assessment of risk areas for the organization. The OIG model manuals may be used to identify some of the common risk areas in the health care field such as billing and coding. However, one of the best ways of assessing risk of liability within the organization is to conduct a baseline audit to determine the adequacy of coding, documentation and medical necessity requirements. A qualified auditor will review several patient records for documentation of accurate CPT coding, appropriate application of the CPT coding guidelines, the correct use of modifiers, issues of unbundling and/or omitted codes, the appropriate application of ICD-9-CM coding guidelines, documentation of medical necessity and the accuracy of billing forms. The information obtained from the baseline audit should be used to develop the compliance program.

Once an organization develops a compliance program, it is essential that it provide appropriate training to all staff members (including physicians), and should also offer ongoing training regarding compliance as well as training in particular specialty areas (i.e., billing and coding, laws, etc.). Periodic audits should be conducted to ensure that the organization complies with state and federal health care laws.

SMS Provides Compliance Guidance

The SMS maintains up-to-date information regarding fraud alerts, OIG case settlements, as well as HCFA and OIG periodic reports describing their initiatives to combat fraud, abuse and waste and the projected areas on which the government will focus in the future.

SMS has an outstanding consulting program, which includes both audit and educational services. Consultants perform audits that identify potential fraud, abuse and waste practices within organizations. In addition, SMS audits frequently identify practices that result in provider underpayments, thereby giving physicians necessary information to obtain appropriate payment for services.

SMS offers a variety of training courses including courses in billing and coding. Questions regarding consulting and educational services should be directed to Karen Garrett, Vice President of Education Programs and Services. She can be reached at (800) 362-9080 or (608) 257-6781.

Conclusion

The government's intense scrutiny on the health care industry in its attempt to reduce fraud, abuse and waste has changed the way that physicians practice. Although high quality patient care continues to be a physician's priority, doctors have an increasing responsibility for understanding and applying billing and payment rules and regulations that on occasion seem inconsistent with that goal. Moreover, violations of the Medicare and Medicaid laws may result in significant monetary and criminal penalties.

The current trend suggests that government scrutiny will become more intense in the coming years. The best investment that a physician can make in today's anti-fraud climate is to devote time and resources into developing a compliance program. An effective compliance program will identify and reduce risky business practices (including poor documentation) that might result in overpayments or other penalties under the Medicare and Medicaid programs. A compliance program will increase the commitment of all staff members to complying with state and federal laws, demonstrate to the community your desire to practice in accordance with the law and help you to keep pace with the changing expectations imposed by the government. In short, the development of a compliance plan offers many benefits with virtually no disadvantages. So why wait to develop a corporate compliance plan—do it now!

Endnotes

1. HCFA has developed a Comprehensive Plan for Program Integrity which can be found on its web site at www.hcfa.gov/medicare/fraud/part2.htm. AMA information regarding physician compliance issues is available at www.ama-assn.org/physlegl/legal.
2. HCFA's Comprehensive Plan for Program Integrity provides cost savings information at www.hcfa.gov/medicare/fraud/intro.htm.
3. The fraud alert is published in the Federal Register, Volume 64, No. 7, Tuesday, January 12, 1999.
4. AMA Statement on HCFA's Ability to Manage the Medicare Program, February 11, 1999. See www.ama-assn.org/ama/basic/article/0,1059,177-370-1,00.html.

Health Professionals Represent 'Front Line' for Vaccine-Preventable Diseases

By Diane Schallert, RN, MS, CPHQ, Jay A. Gold, MD, JD, MPH, and Dennis Spurlin

Taken together, influenza and pneumonia are the sixth leading cause of death in the United States among those over age 65, responsible for 45,000 to 60,000 deaths each year. Approximately 90% of all influenza-associated deaths occur in people aged 65 and older—the fastest growing age group of the US population. While it has been estimated that as many as 70% of these deaths are vaccine-preventable, efforts to prevent them have been hindered by relatively low vaccine utilization.

Adult immunization is one of the most efficient and cost-effective strategies to prevent needless morbidity and mortality. The estimated cost to society for vaccine-preventable diseases approaches $10-12 billion each year.

A 1998 resolution of the State Medical Society noted: "Feedback from the Wisconsin Adult Immunization Coalition's efforts has shown that the most effective interventions to increase adult immunization rates are those aimed at physician recommendations and actual immunization at the time they see their patients for medical care."

Authors are associated with MetaStar. Ms. Schallert is Project Coordinator; Dr. Gold is Senior Vice President and Principal Clinical Coordinator; Mr. Spurlin is Communications Specialist. Reprint requests to: Jay A. Gold, MD, JD, MPH, MetaStar, 2909 Landmark Place, Madison, WI 53713.

The *Morbidity and Mortality Weekly Report* (MMWR), published by the Centers for Disease Control and Prevention, supports a proactive physician approach. Since older adults have a high rate of routine medical care and because provider recommendation often influences a patient, physician recommendation for influenza and pneumococcal vaccination usually is able to overcome patient misgivings. If the physician strongly recommends vaccination, then those who are hesitant to receive it comply in 85% to 90% of the cases. Routine check-ups provide an ideal opportunity to review a patient's need for immunization, but immunization should also be recommended when patients are in for any reason.

Health care experts conclude that a strong systematic approach to improving immunization and a strong patient education effort is vital to effective vaccination efforts. Crucial to this approach is the knowledge, attitude and practice of providers. A highly effective approach routinely makes vaccines available to patients. This may involve:

- Standing orders, or orders written to cover all clinic patients or all patients admitted to hospitals, nursing homes or other extended-care facilities to receive yearly influenza vaccines. These orders should include administering pneumococcal vaccine if confirmation of prior pneumococcal immunization cannot be obtained.
- A system-wide program of routine vaccination, which includes patient identification and recall/reminder systems.
- Reduction of missed opportunities for vaccination by appropriately vaccinating high-risk patients in primary care settings, specialty practices, hospitals and other institutions.
- Offering alternative settings for vaccine administration.
- Offering patients immediate vaccination, without the need for an additional appointment.

MetaStar has developed a kit we will be sending to some physicians in mid-August regarding adult immunization. The kit, which has been endorsed by the State Medical Society, discusses current guidelines for influenza and pneumococcal immunization, offers practical steps that can be taken by physicians to facilitate immunization within their practice, and includes a listing of educational and promotional materials for patients.

An evaluation process will be conducted with the physicians in early spring 2000 as a means to identify use for the kit contents and to note what value it served in their setting. This information will then be used for the continued efforts towards increasing immunization rates in Wisconsin.

Table 1: Summary of Recommendations for Adult Immunization

Vaccine name and route	For whom it is recommended	Usual schedule? Contraindications and precautions
Influenza "flu shot" Give IM	• People 65 years of age or older. • People under 65 with medical problems such as heart disease, lung disease, diabetes, renal dysfunction, hemoglobinopathies, immunosuppression and/or those living in chronic care facilities. (People (>6 mo of age) working or living with these people should be vaccinated as well.) • All health care workers. • Healthy pregnant women who will be in their 2nd or 3rd trimesters during the influenza season. • Pregnant women who have underlying medical conditions should be vaccinated before the flu season, regardless of the stage of pregnancy. • Anyone who wishes to reduce the likelihood of becoming ill with influenza.	• October through November is the optimal time to receive a flu shot to maximize protection, but the vaccine may be given at any time during the influenza season (typically December through March). • Previous anaphylactic reaction to this vaccine, to any of its components, or to eggs. • Moderate or severe acute illness.
Pneumococcal Give IM or SQ	• All adults 65 years of age and older. • People under 65 who have chronic illness or other risk factors including chronic cardiac and pulmonary diseases, anatomic or functional asplenia (including sickle cell disease), chronic liver disease, alcoholism, diabetes mellitus, CSF leaks, as well as persons living in special environments or social settings (including Alaska natives and certain American Indian populations). • Others at high risk include immuno-compromised persons including those with HIV infection, leukemia, lymphoma, Hodgkin's disease, multiple myeloma, generalized malignancy, chronic renal failure, or nephrotic syndrome, those receiving immunosuppressive chemotherapy (including corticosteroids), and those who received an organ or bone marrow transplant.	• Routinely given as a one-time dose. • One-time revaccination recommended 5 years later for people at highest risk of fatal pneumococcal infection, or if the 1st dose was given prior to age 65 and >5 years have elapsed since previous dose. • Give as soon as need is recognized. • Previous anaphylactic reaction to this vaccine or to any of its components. • Moderate or severe acute illness.

Adapted from the Advisory Committee on Immunization Practices (ACIP) by the Immunization Action Coalition with review by ad hoc team - October 1998

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Waterloo, WI Waterloo Clinic: The Dean Medical Center in Waterloo, Wisconsin, population 2,712, has a position available for a family practice physician to do a full range of family practice, (obstetrics is preferred). The clinic hours are 8:00 a.m.-5:00 p.m. Monday through Friday with some extended hours and is currently staffed by one family physician. Each physician would work 4 days per week and see approximately 25-30 patients per day. All hospital admissions will be to Watertown Hospital in Watertown, Wisconsin, population 19,000. The call schedule will be shared with some of the family physicians who admit to Watertown Hospital. Excellent compensation and benefits are provided with employment leading to shareholder status. For more information please contact Scott M. Lindblom, Manager of Medical Staff Services, Dean Medical Center, 1808 West Beltline Highway, 1-800-279-9966 or (608) 250-1550 or Fax (608) 250-1441.

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Interested candidates may send their CV and three letters of reference to either Timothy L. Swan, MD, Chairman, Department of Radiology, or Beth Albee, Physician Recruiter, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, WI 54449. Telephone: 1-800-782-8581, extension 93555 (Radiology) or 94451 (Recruitment). Fax: 715-387-5240 (Radiology) or 715-389-4889 (Recruitment). Sorry. Not an underserved area. An equal opportunity/ affirmative action employer.

E-Mail: albeee@mfldclin.edu
Web site:
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Fort Atkinson, Wisconsin: Dean Medical Center, is actively recruiting for a BE/BC family physician to join their six person practice in Fort Atkinson, Wisconsin, population 10,227. The ideal candidate should have an interest in doing full range family practice including obstetrics and intensive care unit work. Call schedule is 1-5 for weekdays and weekends and each full time physician works 4.25 clinic days per week and sees 20-30 patients per day. Contact Scott Lindblom, Manager of Medical Staff Services, Dean Medical Center, 1808 West Beltline Highway, Madison, Wisconsin, 53713, (work) 1-800-279-9966, (608) 250-1550, (home) (608) 845-2390, FAX (608) 250-1441.

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Southeastern Wisconsin/Watertown, WI: General Surgeon needed at Watertown Memorial Hospital. One of our surgeons will be leaving. With our two current GS and the addition of another we anticipate doing 528 inpatient, 207 outpatient surgeries, 186 inpatient, 1,089 outpatient endoscopies and 1,227 day surgeries. We do laporscopic, vascular and aneurysms. WMH is a 100 bed, community owned hospital with a service area of 50,000+. Watertown is located equidistant from Madison & Milwaukee, 45 miles. Please contact Rich, 920-262-4603, 414-542-8629 or e-mail richard.lynch@famhs. org. EOE

Beaver Dam, Wisconsin: Dean Medical Center a 400+ physician private multi-specialty group is actively recruiting a BE/BC internist to join an existing affiliated practice based in Beaver Dam, Wisconsin, which is located approximately 40 miles from Madison. The practice is located in a medical office building which is adjacent to a 125 bed acute care facility. Beaver Dam is a community of over 14,000 people with excellent recreational resources, including Beaver Dam Lake which is over 14 miles long with 149 miles of shoreline. The Community also has more than 270 acres of parks and high quality public and parochial school systems, including a technical college and Wayland Academy, 135 year old co-ed independent college prep school. This is an excellent opportunity for any physician that has additional interests in cardiology or gastroenterology. For more information contact Scott M. Lindblom, Manager of Medical Staff Services, Dean Medical Center, 1808 West Beltline Highway, Madison, Wisconsin, 53713, work (608) 250-1550, home (608) 833-7985 or fax (608) 250-1441.

PRIMARY CARE PRACTICE OPPORTUNITY: Clinic-based practice opportunity for an Internal Medicine Physician in Southern Wisconsin. Interested candidates may send CV, with salary requirements and references to: Attn: Personnel Dept., Isaac Coggs Health Connection, Inc., 2770 N. 5th Street, Milwaukee, WI 53212

Waupun, WI Elm Avenue Clinic: The Dean Medical Center in Waupun, Wisconsin, has a position available for a family practice physician to do a full range of family practice, (obstetrics is preferred). The clinic is currently staffed by one pediatrician, one OB/Gyn and one nurse practitioner. Each physician would work 4 days per week and see approximately 25-30 patients per day. All hospital admissions will be to Waupun Hospital in Waupun, Wisconsin, population 6,040. The call schedule will be shared with some of the local family physicians who admit to Waupun Hospital. Excellent compensation and benefits are provided. For more information please contact Scott M. Lindblom, Manager of Medical Staff Services, Dean Medical Center, 1808 West Beltline Highway, 1-800-279-9966 or (608) 250-1550 or FAX (608) 250-1441.

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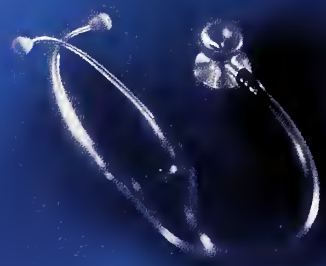

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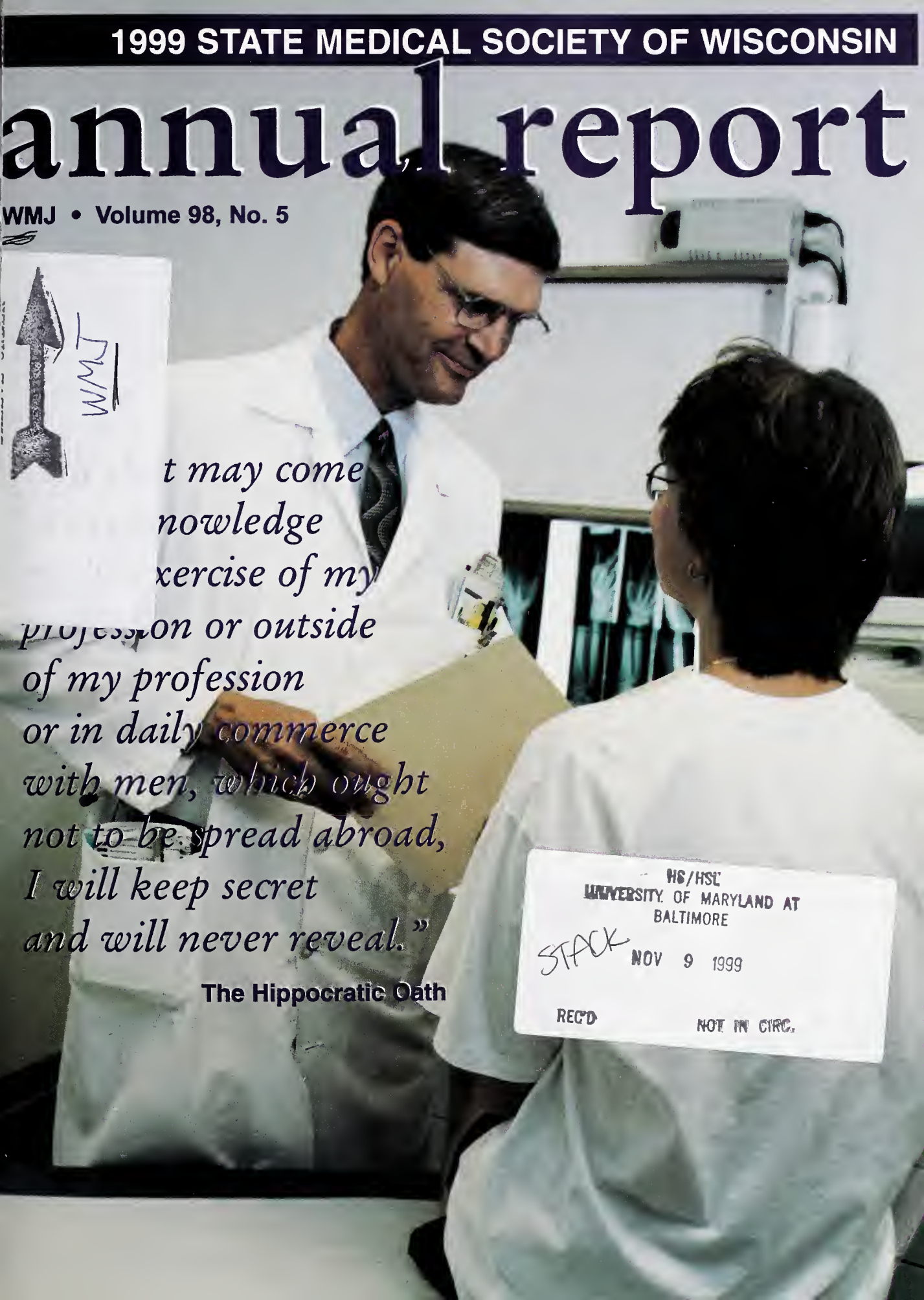

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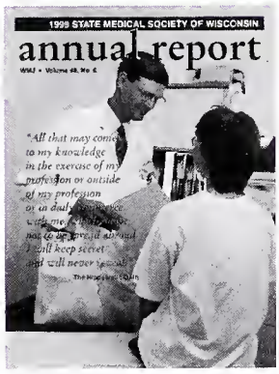

On the cover

Jack Lockhart, MD, a rheumatologist from Gundersen Lutheran Clinic, LaCrosse, was inaugurated as the 146th President of the State Medical Society of Wisconsin at its annual meeting in March. Doctor Lockhart outlined his theme of remaining constant to patients, the medical profession and self—that is, protecting patients' privacy, ensuring patient protections and devoting more time to family and community.

Today's physicians have a unique role according to Dr. Lockhart. As he mentioned in his inaugural address, "Remaining constant, unchanged while the world of change swirls around us" is the challenge faced by those in the medical profession.

Cover design by Kendi Parvin, *WMJ* Managing Editor. Cover photo by Rapid Photo & Studio, Wisconsin Rapids. Annual Meeting photography by Carole Pollack, Carole Pollack Photography, Milwaukee.

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Created by the Territorial Legislature in 1841 and now representing nearly 8,000 member physicians, the Society's purpose is to "advance the health of the people of Wisconsin." The major activities of the Society concern advocacy for patients and physicians, medical education, peer review, statewide health education, scientific affairs, socioeconomics, health planning, service to physicians, operation of the SMS Foundation, and publication of the *Wisconsin Medical Journal.*

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President Elect
John D. Riesch, MD
Past President
John E. Patchett, JD
Executive Vice President
Bradley L. Manning, MD
Treasurer
Michael C. Reineck, MD
Speaker
Kevin T. Flaherty, MD
Vice Speaker

BOARD OF DIRECTORS
Mark H. Andrew, MD
Chair
Robert E. Phillips, MD
Vice Chair

DISTRICT 1
Clarence P. Chou, MD
Gerald G. Govin, MD
Charles E. Holmburg, MD
Thomas J. Luetzow, MD
David J. Matteucci, MD
Evan K. Saunders, MD
George R. Schneider, MD
Gregory A. Shove, MD
Frank H. Urban, MD
Cassandra P. Welch, MD

DISTRICT 2
John W. Beasley, MD
Jerry M. Ingalls, MD
Bradley L. Manning, MD
Alan I. Schwartzstein, MD
Paul A. Wertsch, MD

DISTRICT 3
Mark H. Andrew, MD
Gary L. Bryant, MD

DISTRICT 4
Steven C. Bergin, MD
James R. Keuer, MD
Robert E. Phillips, MD
Susan L. Turney, MD

DISTRICT 5
Johan A. Matison, MD
Kevin F. Quinn, MD
David R. Weber, MD

DISTRICT 6
John J. Beck, MD
David J. Deubler, MD
Linda J. Werner, MD

DISTRICT 7
Douglas M. DeLong, MD
Charles V. Ihle, MD

DISTRICT 8
Mark K. Belknap, MD

RESIDENT FELLOW
Charles J. Rainey, MD

Working together is key to advancing Wisconsin's health

Jack M. Lockhart, MD
SMS President

The State Medical Society of Wisconsin (SMS), established in 1841, is the first and largest physician and patient advocacy association in the state, representing nearly 8,000 member physicians and their patients. Our purpose is to advance the health of the people of Wisconsin through advocacy, professionalism and community involvement.

Patient Advocacy

- Thanks to the partnership between physicians and patients, SMS achieved a significant victory for patient privacy. The compromise plan prevents a patient's "medical record" (medical information and patient-identifying information) from being sent to the state.
- The SMS was a leader in passing Senate Bill 313 (Act 214), which, in part, restricts tobacco vending machines and self-service sales to adult-only locations. The bill also allows fines for up to $250 for a clerk who sells tobacco to a minor.
- The SMS supported a successful measure (Act 155) which prohibits health plans from requiring prior authorization for the treatment of an emergency medical condition.
- To steer tobacco settlement money towards cessation efforts, the SMS has partnered with other public health groups to wage the TRUST Campaign (Tobacco Reduction Using the SettlemenT).

Physician Advocacy

- Despite strong opposition in the state legislature, SMS members and lobbyists prevented a repeal of the $350,000 cap on non-economic damages. Had the repeal of the 1995 cap passed the legislature, Patients Compensation Fund fees would have immediately increased 24 percent. Savings from this victory range from $635 for family practice physicians to $3,810 for surgeons.
- The Health Policy Summit, convened by the SMS, brought together specialty societies and clinic leaders to prioritize legislative goals.
- Revisions in the Patients Compensation Fund mean it will pay only large claims and will be involved in fewer lawsuits.

Membership Demographics for Year Ending 1998

Total Membership: 7977

Female: 1255

Male: 6485

≤ 40: 1851

Resident/PG-I: 421

Student: 180

Practices with < 10 physicians: 2138

Practices with ≥ 10 physicians: 4551

Professionalism

- The Medical Outcomes Research Project (MORP), created in 1995, helps physicians answer the demand for accountability from health care systems, from patients, from payors and purchasers, and from the public. Preliminary findings of MORP's Adult Asthma Study were released at the 1999 SMS Annual Meeting and published in the May/June *WMJ*.
- The Physician Support Program, jointly sponsored by the SMS and Physicians Insurance Group of Wisconsin, provides helpful information and emotional support to physicians named in medical professional liability actions.
- The Office of the General Counsel assists physicians with contract review, informed consent, practice and risk management issues and medical staff bylaw analysis. Members also receive a copy of *A Physicians Guide to Wisconsin Health Law*.

Community

- The SMS teamed with Marshfield Medical Research Foundation and the Wisconsin Division of Public Health to form the Wisconsin Antibiotic Resistance Network (WARN). Funded by a cooperative agreement from the Centers for Disease Control and Prevention, the group will conduct a five-year statewide study aimed at reducing outpatient antibiotic use for upper respiratory infections and reducing the prevalence of antibiotic-resistant *S. pneumoniae* isolates in Wisconsin. Project activities include public education, clinician education, surveillance and evaluation.
- "On Air Health Care" is a State Medical Society radio service that features physicians speaking on an array of health care topics. The audio is provided for radio stations on a weekly basis to inform the public about current medical topics that may improve and extend their lives.
- Following the SMS-sponsored statewide broadcast of the highly-acclaimed video "Smoking: Truth or Dare," SMS joined forces with the Wisconsin Education Association Council (WEAC) to produce a lesson plan for schools and forums throughout Wisconsin. The anti-smoking presentation features the video, along with physicians teaching part of the lesson and offering their real world medical experience treating smoking-related diseases. The program was launched in schools last December. To date, 43 physician volunteers have presented the program in 23 schools—reaching over 4,000 middle school students.

It is crucial that we continue our active and unified role in the discussions and actions shaping the future of medical care.

- The SMS received a National Safety Council grant to coordinate the grassroots and public relations activities of the Wisconsin Safety Belt Coalition. The Coalition is a diverse group of health care, insurance, hospitals, advocacy and government representatives working to pass a standard seat belt bill. In addition, the SMS, through the "Buckle Up America!" campaign, educates health care providers on talking to patients about wearing safety belts and properly restraining children in the back seat.

It is crucial that we continue our active and unified role in the discussions and actions shaping the future of medical care. Decisions are being made today by the government, managed care corporations, and insurance companies about the patient/physician relationship, telemedicine, health care cost and quality, practice parameters and more. These decisions have an immense effect on our future. Physicians must be a part of these deliberations and the SMS can facilitate that role through your membership.

Thank you for your commitment to the State Medical Society of Wisconsin. The strength of the profession rests with physicians working together to advance the health of the people of Wisconsin.

SMS 1999-2000 Officers

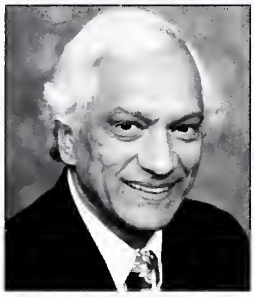
Jack M. Lockhart, MD
1999-2000

Jack M. Lockhart, MD, President

1836 South Ave, La Crosse 54601

Jack M. Lockhart, MD, is Board certified in internal medicine and rheumatology. Doctor Lockhart graduated from Harvard Medical School and served an internship at University Hospitals of Cleveland, Cleveland, Ohio. He completed fellowships at the University of Minnesota Medical School in Minneapolis where he was an instructor from 1976-1977, and has been a clinical lecturer with the University of Iowa since 1982.

Doctor Lockhart served as a delegate to the SMS and has been on the Board of Directors since 1989, serving on the Finance Committee for nine years and as Treasurer and Chair of the Finance Committee for one year. He was a member of the Nominating Committee from 1986-1990. He served as a member of WISPAC's Board of Directors from 1990-1992, and was a member of the Physicians Alliance Commission for nine years. Doctor Lockhart is currently serving on the Board of SMS Holdings, and has served as President of the La Crosse County Medical Society (1993-1994). In addition, he has held numerous leadership positions with Gundersen Lutheran Medical Center, La Crosse and was the Chairman of the Department of Medicine from 1993-1998.



Ayaz M. Samadani, MD
1999-2000

Ayaz M. Samadani, MD, President-Elect

148 Warren St, Beaver Dam 53916

A family physician, Dr. Samadani received his medical degree in Pakistan. He served his internship at Henrotin Hospitals in Chicago. He spent five years of post-graduate training in internal medicine and pediatrics in London. He is a fellow of the Royal Society of Tropical Medicine and Hygiene and is certified in child health from the Royal College of Physicians and Surgeons of London. He has been in practice in Beaver Dam since 1971, and is chair of the pediatric department of Beaver Dam Community Hospital. He has served as secretary and president of Dodge County Medical Society and is past president of the Wisconsin chapter of the Association of Pakistani Physicians of North America. He is Chief of Staff at Beaver Dam Community Hospital. He is also a member of the Commission on the Center for Medical Practice Research and Education. Doctor Samadani is a past member of the AMA Advisory Committee of International Medical Graduates, and a fellow of the American Academy of Family Physicians.

John D. Riesch, MD
1999-2000

John D. Riesch, MD, Immediate Past President

W131 N8029 Country Club Dr, Menomonee Falls 53051-7268

John D. Riesch, MD, is a general surgeon with the Medical Associates Health Centers in Menomonee Falls. He received his medical degree from the University of Wisconsin Medical School in 1958; completed an internship with the Milwaukee County General Hospital; and a general surgery residency there in 1963. He served in the US Army from 1952-1954 and in 1965 was appointed Assistant Clinical Professor, Department of Surgery, with the Medical College of Wisconsin, a post he still holds. He is Board certified in surgery and is a Fellow with the American College of Surgeons.

Doctor Riesch's memberships include: the American Medical Association, the Waukesha County Medical Society (President 1973-1974); Wisconsin Chapter, American College of Surgeons; Wisconsin Surgical Society, Chairman Ethics Committee; Medical Society of Milwaukee County; and Waukesha Cancer Society (President 1969-1970).

He has been a member of the SMS since 1963 and has held the following posts: member, Nominating Committee, 1976-1994; member, Commission on

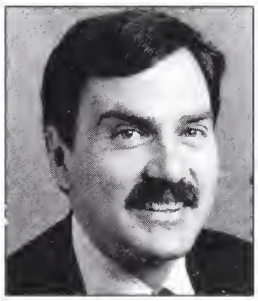
Peer Review, 1975-1984; Delegate, House of Delegates, 1967-present. He served as an AMA Alternate Delegate from 1979-1988 and as a Delegate from 1988-1996.

John E. Patchett, JD

John E. Patchett, JD, Executive Vice President & Secretary

330 E Lakeside St, PO Box 1109, Madison 53701

Before joining the SMS in October, 1996, John Patchett, JD, served as Deputy Executive Vice President of the Florida Medical Association. Prior to that, he spent 10 years on the staff of the American Medical Association – four years in Specialty Society Relations and six years as Director of the Department of State Legislation. He served in the Iowa House of Representatives from 1973 to 1980. Mr. Patchett earned his Juris Doctorate degree from the University of Iowa School of Law.



Brad L. Manning, MD
1999-2000

Brad L. Manning, MD, Treasurer

1108 Nishishin Trail NE, Madison 53716-2981

Doctor Manning, whose specialty is plastic and reconstructive surgery, graduated from the University of Illinois College of Medicine and completed his general surgery and plastic surgery residency at the University of Wisconsin-Madison. He has served as a trustee and president of the Dane County Medical Society. He was chair of the department of surgery and president of medical staff at Meriter Hospital. Doctor Manning served on the SMS Task Force on Health Care Reform and on the Commission on Public Information. He has served as a delegate for the SMS and is currently a director and member of the Health Care Financing and Access Council.

Michael C. Reineck, MD
1996/1999-2001

Michael C. Reineck, MD, Speaker of the House

205 Valley Ave, West Bend 53095-8779

Doctor Reineck graduated from the University of Wisconsin in 1970 and completed an internship at Milwaukee County General Hospital and a residency at St. Mary's Hospital, in affiliation with the Medical School of the University of Michigan, in Grand Rapids. He has a private orthopedic practice in West Bend. Doctor Reineck is past chair of the SMS Governmental Affairs Committee, and past president of the Wisconsin Orthopaedic Society and the Washington County Medical Society. He is also a past member of the Wisconsin Professional Liability Committee. He is a member of the American Academy of Orthopaedic Surgeons Committee on Occupational Health. He was the Washington County Medical Society delegate to the SMS House of Delegates for 11 years prior to his election as vice speaker in 1994.

Kevin T. Flaherty, MD
1996/1998-2000

Kevin T. Flaherty, MD, Vice Speaker

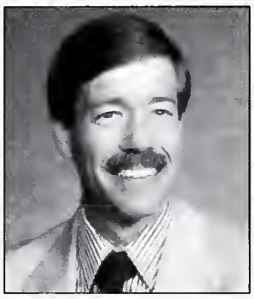
614 First St, PO Box 689, Wausau 54402-0689

Doctor Flaherty received his medical degree from Loyola University in Chicago. He served an internship at Sacred Heart Medical Center in Spokane, WA, and his residency at Loyola University in ophthalmology. He took post residency training in corneal transplant surgery at the University of Louisville in Louisville, KY, and in ophthalmic plastic and reconstruction surgery at the Massachusetts Eye and Ear Infirmary at Boston, MA. He has been in practice in Wausau for eight years. For the past five years, Dr. Flaherty has served as medical director for the North Central Health Protection Plan, a cooperative health plan of Wausau Insurance. He is currently president of the Wisconsin Academy of Ophthalmology and serves on its executive committee. Doctor Flaherty has served as the Marathon County Medical Society delegate to the SMS House of Delegates. He has chaired reference committees at the Young Physicians Section of the AMA and SMS. Doctor Flaherty was elected to the Wisconsin delegation of the AMA as an alternate delegate in 1995, and as a delegate in 1999.

Mark H. Andrew, MD
1999-2000

Mark H. Andrew, Chair, Board of Directors
Vernon Memorial Hospital, Viroqua 54665

Doctor Andrew, a general surgeon at Vernon Memorial Hospital in Viroqua, graduated from the University of Wisconsin Medical School, and served his internship and residency at Southwestern Michigan Area Health Education Center in Kalamazoo. He was chair of the Young Physicians Section of SMS in 1991. He was a member of the SMS Commission on Government Affairs from 1990-1999, and has been president of the Vernon County Medical Society since 1989. He served on the SMS Nominating Committee from 1993-1999 (serving as chair from 1998-1999) and he is on the WISPAC Board of Directors. Doctor Andrew is a Fellow of the American College of Surgeons, and is a member of the Wisconsin Surgical Society, the American Society of General Surgeons, the Society of Laparoendoscopic Surgeons, and the American Medical Association.



Robert E. Phillips, MD
1999-2000

Robert E. Phillips, MD, Vice Chair, Board of Directors
1000 N Oak Ave, Marshfield 54449-5777

Doctor Phillips, a general internist and geriatrician, received his medical degree from Northwestern University Medical School in Chicago, and served his residency in internal medicine at the University of Minnesota Affiliate Hospitals. Doctor Phillips has been in practice at the Marshfield Clinic since 1979. He has been a member of the SMS since 1979, and has served on the Commission on Mediation and Peer Review, Commission on Geriatric Health, and was Chair of the Commission on Public Information. He currently serves as chair of the SMS Membership Committee. Doctor Phillips was the ad hoc chair of the State Mini-Internship Committee and has been a delegate to the SMS since 1988. He is also a past president of the Wood County Medical Society. Doctor Phillips was a member of the nominating committee of the SMS from 1990-1995, serving as chair in 1992-1993. n addition, Dr. Phillips was president of the Wisconsin Association of Medical Directors in 1989, and president of the Wisconsin Society of Internal Medicine in 1990. He also served on a Task Force for Health Care Reform of Wisconsin Care in 1993. Doctor Phillips is a member of the American Society of Internal Medicine, American College of Physicians, American Medical Directors Association, American Geriatric Society, and American Medical Association.

SMS 1999-2000 Directors

Board of Directors District 1
Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha counties

Note:
Dates in parentheses indicate initial year of appointment and beginning and expiration of terms of office.

Clarence P. Chou, MD
District 1
(1994/1999-2002)
10028 N Miller Dr, 2W
Mequon 53092-6186

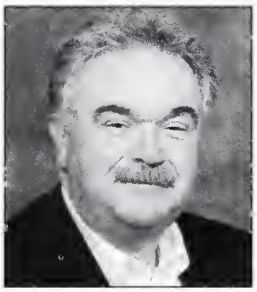
Gerald G. Govin, MD
District 1
(1996/1999-2002)
15720 Mark Dr
Brookfield 53005-3579

Charles E. Holmburg, MD
District 1
(1996/1999-2002)
W180 N7950 Town Hall Rd, PO Box 427
Menomonee Falls
53051-0427

Thomas J. Luetzow, MD
District 1
(1999/1999-2002)
N7406 County Rd E
Watertown 53094-9533

David J. Matteucci, MD
District 1
(1995/1999-2002)
5004 22nd Ave
Kenosha 53140-5923

Evan K. Saunders, MD
District 1
(1998/1998-2001)
2901 W KK River Pkwy, #417
Milwaukee 53215-3660



George R. Schneider, MD
District 1
(1989/1997-2000)
9330 W Lincoln Ave
West Allis 53227-2300

Gregory A. Shove, MD
District 1
(1999/1999-2002)
3807 Spring St
Racine 53408-5001

Frank H. Urban, MD
District 1
(1993/1997-2000)
3645 Emberwood Dr
Brookfield 53005-2388

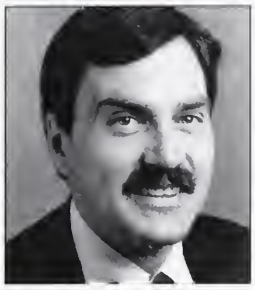
Board of Directors District 2

Adams, Columbia, Dane, Dodge, Grant, Green, Iowa, Jefferson, Lafayette, Marquette, Richland, Rock, and Sauk counties

Cassandra P. Welch, MD
District 1
(1995/1998-2001)
2770 N Fifth St
Milwaukee 53212-2354

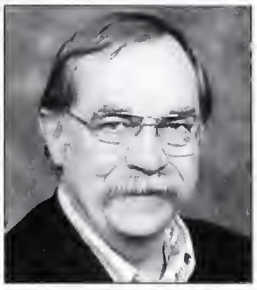
John W. Beasley, MD
District 2
(1996/1999-2002)
777 S Mills St
Madison 53715-1849

Jerry M. Ingalls, MD
District 2
(1992/1997-2000)
W5005 Harper Rd
Monticello 53570-9621



Bradley L. Manning, MD
District 2
(1995/1998-2001)
1108 Nishishin Trail NE
Madison 53718-2981

Alan I. Schwartzstein, MD
District 2
(1997/1997-2000)
753 N Main St
Oregon 53575



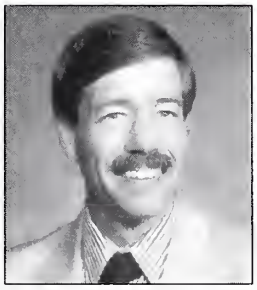
Paul A. Wertsch, MD
District 2
(1993/1997-2000)
4221 Venetian Ln
Madison 53718-6655

Mark H. Andrew, MD
District 3
(1992/1998-2001)
Vernon Memorial Hospital
507 S Main
Virocqua 54665

Gary L. Bryant, MD
District 3
(1998/1998-2001)
1836 S Ave
La Crosse 54601-5429

Steven C. Bergin, MD
District 4
(1997/1997-2000)
617 Linwood Ave
Stevens Point
54481-4428

James R. Keuer, MD
District 4
(1995/1998-2001)
9601 Townline Rd
PO Box 1390
Minocqua 54548-1390



Robert E. Phillips, MD
District 4
(1995/1998-2001)
1000 N Oak Ave
Marshfield 54449-5777

Susan L. Turney, MD
District 4
(1999/1999-2002)
1000 N Oak Ave
Marshfield 54449-5777

Board of Directors District 3

Buffalo, Crawford, Jackson, Juneau, La Crosse, Monroe, Trempealeau, and Vernon counties

Board of Directors District 4

Clark, Florence, Forest, Langlade, Lincoln, Marathon, Oneida, Portage, Price, Taylor, Vilas, and Wood counties

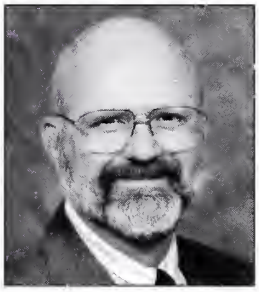
Board of Directors District 5
Calumet, Fond du Lac, Green Lake, Outagamie, Waupaca, Waushara, and Winnebago counties

Johan A. Mathison, MD
District 5
(1999/1999-2002)
712 Doctors Ct
Oshkosh 54901

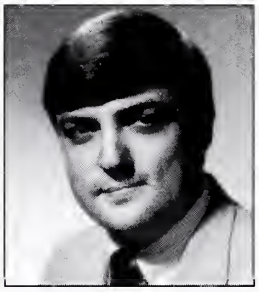
Kevin F. Quinn, MD
District 5
(1995/1998-2001)
1147 Glenayre
Neenah 54956-4235

David R. Weber, MD
District 5
(1997/1997-2000)
149 Cottage Ave
Fond du Lac
54935-3627

Board of Directors District 6
Brown, Door, Kewaunee, Manitowoc, Marinette, Menominee, Oconto, Shawano, and Sheboygan counties



John J. Beck, MD
District 6
(1998/1998-2001)
330 S 16th Pl
Sturgeon Bay
54235-1457



David J. Deubler, MD
District 6
(1994/1997-2000)
635 Paine St
Kiel 53042

Linda J. Werner, MD
District 6
(1998/1998-2001)
2935 Shore Dr
PO Box 1056
Marinette 54143-4237

etcetera

Board of Directors Ex-officio Members

John E. Patchett, JD, Executive Vice President & Secretary
Don Lee, Medical Student, UW-Madison
Aaron Holtebeck, Medical Student, MCW-Milwaukee

Delegates to the AMA

Kevin T. Flaherty, MD (1999/1999 & 2000)
614 First St, PO Box 689, Wausau 54402-0689
Cyril M. Hetsko, MD (1994/1999 & 2000)
1313 Fish Hatchery Rd, Madison 53715-1911
Kevin A. Jessen, MD (1998/1999 & 2000)
N5115 Oak Hill Rd, Fond du Lac 54935
Susan L. Turney, MD (1995/1999–2001)
1000 North Oak Ave, Marshfield 54449-5777
Kenneth M. Viste, Jr, MD (1993/1999–2001)
100 Stoney Beach Rd, Oshkosh 54901-7243
Raymond C. Zastrow, MD (1997/1999–2001)
2400 W Villard Ave, Milwaukee 53209

Alternate Delegates to the AMA

Timothy G. McAvoy, MD (1997/1999 & 2000)
1751 East Main, Waukesha 53186-3940
Clarence P. Chou, MD (1999/1999-2001)
10028 N Miller Dr, 2W, Mequon 53092-6186
Robert J. Jaeger, MD (1995/1999-2001)
3291 Thompson Ct, Stevens Point 54481-5464
Richard G. Roberts, MD (1996/1999-2001)
777 South Mills St, Madison 53715
(2 vacancies)

Note: Officers, directors, delegates, alternate delegates, and members of councils are elected at the SMS Annual Meeting. AMA delegates and alternate delegates' terms of office are on a calendar basis, although elected at the Annual Meeting.

Charles V. Ihle, MD
District 7
(1994/1997-2000)
1400 Bellinger St
Eau Claire 54703

Douglas M. DeLong, MD
District 7
(1995/1998-2001)
906 College Ave W
Ladysmith 54848

Mark K. Belknap, MD
District 8
(1996/1999-2002)
922 Second Ave W
Ashland 54806-3130

Charles J. Rainey, MD, JD
Resident Fellow Section
(1998/1999-2000)
9590 N Range Line Rd
River Hills 53217-1019

Board of Directors District 7
Barron, Chippewa, Dunn, Eau Claire, Pepin, Pierce, Polk, Rusk, St Croix, Burnett, and Washburn counties

Board of Directors District 8
Ashland, Bayfield, Douglas, Iron, and Sawyer counties

Committees of the Board - 1999-2000

Executive Committee
Jack M. Lockhart, MD, La Crosse, Chair, President of the Society
Ayaz M. Samadani, MD, Beaver Dam, President-elect of the Society
John D. Riesch, MD, Menomonee Falls, Immediate Past President of the Society
Mark H. Andrew, MD, Viroqua, Chair of the Board
Robert E. Phillips, MD, Vice chair of the Board
Bradley L. Manning, MD, Madison, Chair of the Finance Committee
Michael C. Reineck, MD, West Bend, Speaker of the House of Delegates
Jerry M. Ingalls, MD, Director at large
Clarence P. Chou, MD, Mequon, Director at large

Ex Officio non-voting members:
Carol Reminga, Grafton, Alliance president
Carol Harding, Neenah, Alliance president-elect

Finance Committee
Bradley L. Manning, MD, Madison, Chair
Mark K. Belknap, MD, Ashland
Steven C. Bergin, MD, Stevens Point
David J. Deubler, MD, Kiel
Gerald C. Govin, MD, Brookfield
Charles E. Holmburg, MD, Menomonee Falls
Charles V. Ihle, MD, Eau Claire

Membership Committee
Robert E. Phillips, MD, Marshfield, Chair
Steven C. Bergin, MD, Stevens Point
Gary L. Bryant, MD, La Crosse
Gerald G. Govin, MD, Brookfield
Wendy L. Larson, MD, Milwaukee
David J. Matteucci, MD, Kenosha
Sandra L. Osborn, MD, Verona
Alan I. Schwartzstein, MD, Oregon
Gregory A. Shove, MD, Racine
Linda J. Werner, MD, Marinette
Tosha B. Wetterneck, MD, Madison
Pamela A. Wilson, MD, Madison
Deanna Johnson, Madison

Charter Law of the SMS

Chapter 148

148.015 State society.(1) The State Medical Society of Wisconsin is continued with the general powers of a corporation. It may, from time to time adopt, alter and enforce constitution, bylaws and regulations for admission and expulsion of members, election of officers, and management.

(2) A member expelled from a county medical society may appeal to the state society, whose decision shall be final.

148.02 County societies. (1) The physicians and surgeons, not less than five in number, of the several counties, except those wherein a county medical society exists, may meet at such time and place at the county seat as a majority agree upon and organize a county medical society, and when so organized it shall be a body corporate by the name of the medical society of such county, shall have the general powers of a corporation, and may take by purchase or gift and hold real and personal property. County medical societies now existing are continued with the powers and privileges conferred by this chapter.

(2) Physicians and surgeons who, before April 20, 1897, received a diploma from an incorporated medical college or society of any of the United States or territories or of any foreign country, or who shall have received a license from the medical examining board, shall be entitled to meet for organization or become members of the county medical society.

(3) If there is not a sufficient number of physicians and surgeons in any county to form a county medical society they may associate with those of adjoining counties, and the physicians and surgeons of not more than 15 adjoining counties may organize a county medical society under this chapter, meeting at such time and place as a majority agree upon.

(4) A county medical society may from time to time
adopt, alter and enforce constitution, bylaws and regulations for the admission and expulsion of members, election of officers, and management, not inconsistent with the constitution, bylaws and regulations of the state society.

148.03 Service insurance corporations for health care. The state medical society or, in a manner approved by the state society, a county society, may establish in one or more counties of this state a service insurance corporation for health care under ch. 613.

Note on §148.03, 447.13, and 449.15: Chapter 613 provides in general terms for the creation, governance and regulation of service insurance corporations for any kind of health care, as well as for other types of services. All that is needed in each authorizing chapter for professional societies is a brief section giving the appropriate professional society the power to organize a ch. 613 corporation. Section 148.03 creates that section for health care.

One basic restriction results from the repeal of the old enabling sections: none of the professional societies will be able to organize a service insurance plan within its own corporate structure. It is a mistake to permit such a mixing of professional and insurance activities within the same corporation. The society can, of course, control the service insurance corporation it creates under ch. 613, but the service insurance corporation will be legally separate. This will lead to more effective (and appropriate) control by the insurance commissioner, who should neither be empowered nor compelled, as arguably he was under the old statutes, to have any concern about the purely professional activities of the societies, because of the impossibility of disentangling the insurance and professional activities carried on by a single corporation.

Constitution

Article I
Name of the Association

The name and title of this organization shall be the State Medical Society of Wisconsin.

Article II
Purpose

The purpose of the Society is to bring together the physicians of the state of Wisconsin to advance the science and art of medicine and the better health of the people of Wisconsin, and to secure the enactment and enforcement of just medical laws. As used in the Constitution and Bylaws, "physician" means a doctor of medicine or a doctor of osteopathy licensed in Wisconsin.

As adopted by the House of Delegates, March 1999

Article III
Component Societies

Component societies shall consist of those county medical societies chartered by the House of Delegates of this Society.

Article IV
Composition of the Association

This Society shall consist of members who shall be the members of and certified by the component county medical societies; and whose dues and assessments for the current year have been received by the Society executive vice president in accordance with the schedule provided in the Bylaws.

Article V
House of Delegates

The House of Delegates shall be the legislative body of

the Society and shall consist of:

(1) delegates elected by the component county medical societies,
(2) one delegate representing each specialty section of the Society, and one or more delegates representing each of the two medical student special sections, organized under the Bylaws,
(3) a speaker,
(4) a vice speaker.

The officers of the Society enumerated in Article IX of this Constitution, directors, and past presidents of the Society shall be ex officio members, but without the right to vote, except that if they have been duly seated as delegates, they shall have the right to vote. The speaker and vice speaker shall be elected by and from the House of Delegates for two-year terms, and shall be limited to three consecutive full terms in their respective offices. While holding these offices, they shall be members of the House at large and shall not represent any component county society or specialty society.

Article VI
Board of Directors

The Board of Directors, hereinafter referred to as "Board," shall have full authority and power of the House of Delegates between sessions of the House. It shall consist of the resident physician and district directors, immediate past president, president, president-elect, treasurer, speaker and vice speaker of the House of Delegates. The executive vice president shall be an ex officio member of the Board, but without the right to vote. A majority of its voting members shall constitute a quorum. One resident physician director shall be elected by the members of the resident physician section of the Society. District directors shall be elected from eight geographic districts whose boundaries shall be determined by the House of Delegates. There shall be elected one director from each district. In addition, there shall be elected director(s) from each district based on a formula using the number of members in each district as the numerator and the total membership of the Society as the denominator, rounded to the nearest whole number. This calculation shall be made every third year, and, as nearly as possible, is to provide for no more than 31 district directors and shall be based on the year end membership totals. The number of directors established for each district shall be approved by the Board and shall be reported to the districts by the executive vice president before annual elections to the Board. As nearly as possible, one-third of the district director members of the Board shall be elected each year. Each district director shall be nominated and elected only by the elected delegates of the county medical society or societies from the district in which the director's principal place of practice is located. District and resident physician director elections shall be subject to the approval and confirmation of the House of Delegates. The terms of the district directors shall be for three years. The term of the resident physician director shall be for one year. No individual shall be permitted to serve more than three consecutive three-year terms as a district director or four consecutive one-year terms as the resident physician director, and no more than a total of six terms of service as a district director or a combined total of seven terms of service as the resident physician director and a district director shall be permitted.

Article VII
Specialty Sections

The House of Delegates shall provide for a division of the Society into specialty sections.

Article VIII
Meetings

Section 1. The Society shall hold an annual meeting, at which time the House of Delegates shall meet to conduct its business. The annual meeting may also include scientific sessions as determined by the Board.

Sec 2. The place for holding each annual meeting shall be fixed by the House of Delegates, or by failure to act, such authority is delegated to the Board. The time and the place for holding each annual meeting shall be approved by the Board.

Sec 3. Special meetings of the House of Delegates shall be called by the speaker on written request of twenty delegates representing at least 10% of the component county medical societies, or on request of a majority of the Board. When a special meeting is called, the speaker shall set the time and place. The executive vice president shall mail a notice to the last known address of each member of the House of Delegates at least twenty days before the date of the special meeting. The notice shall specify the time and place of the meeting and the purpose for which the meeting is called. The meeting shall consider no business except that for which it is called.

Article IX
Officers

Officers of this Society shall be a president, a president-elect, an executive vice president, and a treasurer. The president-elect and treasurer shall be elected annually by the House of Delegates. The executive vice president shall be elected and the treasurer shall be nominated annually by the Board. The president-elect shall automatically succeed to the office of president at the conclusion of the term as president-elect. The treasurer shall be limited to nine consecutive terms and must be a director of the Board. No person shall hold more than one of the following offices concurrently: president, president-elect, executive vice president, treasurer, speaker, vice speaker, director, except that the treasurer is a member of the Board. Incumbents shall serve until their successors are elected and installed.

Article X
Funds and Expenses

Funds may be raised by annual dues or by assessment on the members, or in any other manner approved by the House of Delegates. The House may establish

regular and special classifications of membership. Dues, if any, shall be applied equitably to all members in each class. All resolutions adopted by the House of Delegates providing for appropriations shall be referred to the Board for implementation. All expenditures approved by the Board shall be included in the annual budget.

Article XI
Referendum

The House of Delegates may, by a two-thirds vote of those registered at that session, submit any question to the membership of the Society for its vote, except amendments to the Constitution. Such amendments are governed by Article XIII. The House shall determine prior to submission whether a referendum shall be advisory or binding, and so advise the membership at the time of submission. A majority vote of all the members of the Society shall determine the question on a binding referendum.

Article XII
Seal

The Society shall have a common seal. The power to change or renew the seal shall rest with the House of Delegates.

Article XIII
Amendments

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the members of the House present at any annual meeting, provided that such amendment shall have been introduced in the form of a constitutional amendment in open session at the previous annual meeting, and that it shall have been published at least once during the year in the Journal of this Society, or sent to each member of the Society at least two months before the meeting at which final action is to be taken.

Bylaws

Chapter 1
Membership

Section 1. The name of a physician on the official roster of this Society, after it has been properly reported by the secretary of the county society, shall be prima facie evidence of membership and of the right to benefits.

Sec 2. No person whose name has been dropped from the roll of members of a component society or this Society shall be entitled to any of the rights or benefits of this Society, except that such rights and benefits shall continue during the period of an appeal by such person to the Board of Directors.

Sec 3. Every physician who holds a license to practice medicine and surgery in Wisconsin shall be eligible to apply for membership. Each county society shall be the judge of the initial and continuing qualifications of its members, as well as the appropriate membership classification. Members will conduct themselves in a manner which is not in conflict with the purposes for which the Society is organized and is operating.

Sec 4. A county medical society must accept or reject a request for physician membership within sixty (60) days of receiving the application for membership. In the event a county medical society is unable to act on a physician membership application within the aforementioned time frame, the physician may withdraw the application from that county society and resubmit an application for membership to the State Medical Society's Board of Directors or designated committee, or another county medical society as provided in Sec. 6.

Sec 5. A member of a component society whose license has been revoked, suspended, non-renewed, or voluntarily surrendered, shall be immediately and automatically suspended from membership as of the date of revocation, suspension, non-renewal, or voluntary surrender, pending definitive action by the Board.

Sec 6. A physician's county society membership must be held in that county in which the physician's principal place of practice is located. However, a physician may hold membership in that county most convenient for attending meetings, with concurrence of the component society in which the principal place of practice is maintained. If a physician's primary county medical society is inactive, the physician may choose membership in another county.

Sec 7. A member whose principal practice is moved from within the territorial limits of a component medical society to the territory of another component of the State Society shall inform the State Society of the change and the need to change his or her county medical society membership. After checking Wisconsin licensure, the State Society will inform both county societies of the change in membership. However, membership dues, if already paid, will stay with the original county. If not paid, the county where the physician is moving will receive the dues.

Sec 8. Rights and privileges of members whose principal practice is out of state.

A. Out-of-State Practice. When the principal practice of a member in good standing in a component society is moved outside the borders of this state, membership in such component society and in the State Society may be continued by fulfilling all requirements of membership except residence. Members who choose to continue membership under this subsection shall have no voting rights nor hold office in the component society or in the State Society, but shall maintain all other membership benefits.

B. Part time In-State Practice. When the principal practice of a member in good standing in a

component society is moved outside the borders of this state but who continues to practice less than part time as defined in Sec. 9.B.(1), within the state and who continues to fulfill all requirements of membership except residence, membership may be continued.

Sec 9. Membership classifications. Members defined in this section, except affiliates, shall have all the rights and privileges of the Society and shall pay dues and assessments, as indicated, as a requirement of continued membership.

A. Regular. Regular members of this Society consist of all the regular members in good standing of the component county societies.

B. Special. Included in this classification are the following categories of members who by virtue of their special circumstances are entitled to reduced dues or waiver thereof:

(1) Part-time practice. Except as provided in Section 8, any physician who, regardless of age, practices part-time but does not qualify under section 9.B.(5), may upon application, recommendation by the county medical society, with reference to the Section 4 timeframe and approval by this Society, be placed in this special category.

(2) Resident. Physicians in approved training programs as hospital residents or as fellows who are licensed to practice medicine and surgery in Wisconsin.

(3) Associate. Members who suffer a disability preventing them from practicing medicine; members who are inducted into the United States Military or Public Health Service and serve in such capacity for not more than five (5) years; and members who take a leave of absence from practice to care for a sick family member or new child. Such membership shall be on an annual basis, upon recommendation of the State Medical Society Membership Committee.

(4) Retired. Members who have retired completely from the practice of medicine, or who practice 240 hours or less during a calendar year, upon recommendation of the county society with reference to the Section 4 timeframe.

(5) Life. Those members of the State Medical Society of Wisconsin who have been members of this or other state medical societies for fifty (50) years, or are past presidents of the State Medical Society of Wisconsin. They shall receive a certificate of Life Membership.

(6) Candidate. Upon application, a county medical society or this Society may confer upon any person then attending a medical school in Wisconsin or fulfilling a post-graduate obligation prior to eligibility for licensure the status of Candidate Member.

(7) Researcher. Members who work under an ACGME accredited institution whose primary source of income is research grants or at the discretion of the State Medical Society Membership Committee. Such special membership category can be maintained for a maximum of five (5) years.

C. Affiliate. Persons who are not otherwise eligible for membership may become affiliated with this Society in one of the following categories. Their dues or assessments, as well as rights and privileges as affiliate members, shall be determined by the Board.

(1) Scientific Fellow. The Board may by invitation and unanimous consent confer upon any person engaged in teaching of or research in one or more of the basic sciences at an accredited college or university, and not holding the degree of Doctor of Medicine or Osteopathy, the status of Scientific Fellow.

(2) Emeritus. Retired members who have chosen not to renew their license.

(3) Other. At its discretion, the Board of Directors may create other categories of Affiliate members.

Sec 10. Dues and Assessments. Members shall pay dues and assessments as follows:

A. Regular members: full dues and assessments as determined annually by the House of Delegates.

B. Physicians in part-time practice: one-half of regular member dues and assessments.

C. Physicians in residency or fellowship training, candidate and researcher: dues and assessments are to be determined by the Board of Directors. Dues and assessments for all other categories shall be waived, except as may be determined by the Board for affiliate members.

Chapter II
House of Delegates

Section 1. Each component county society shall be entitled to send one delegate and one alternate to the House of Delegates for each forty regular and special members or majority fraction thereof in this Society, provided, however, that each county society shall be entitled to at least one delegate and one alternate from that county society. For purposes of this section, the number of members as of the close of the calendar year preceding the first session of the House of Delegates at the Annual Meeting shall determine the number of delegates to which a county society shall be entitled. The secretary of each county society will send a list of such delegates and alternates to the executive vice president of this Society by the end of each calendar year preceding the year in which such delegates are elected to serve.

Sec 2. One-fourth of the members of the House of Delegates registered, representing one-fourth of the county medical societies in the state,

shall constitute a quorum of the House of Delegates. All meetings of the House of Delegates shall be open to members of the Society.

Sec 3. The speaker shall preside at the meetings of the House of Delegates.

Sec 4. The vice speaker shall officiate for the speaker in the latter's absence or at his request. In case of death, resignation, or removal of the speaker, the vice speaker shall officiate during the unexpired term.

Sec 5. The speaker shall appoint members of reference committees from among the members of the House of Delegates. These committees shall consider and make recommendations to the House relative to resolutions, reports of officers, reports of commissions and committees, financial and other matters germane to the business of the House. The speaker shall also appoint a credentials committee and such other committees as deemed necessary.

Sec 6. The House of Delegates shall elect delegates to the House of Delegates of the American Medical Association in accordance with the Constitution and Bylaws of that body. No person who has served 12 or more consecutive years as a Wisconsin delegate to the AMA shall be eligible to serve another term unless the delegate will concurrently serve on any of the following American Medical Association Councils: Constitution and Bylaws, Medical Education, Medical Service, Ethical and Judicial Affairs, Long Range Planning and Development, Legislation, Scientific Affairs; or, the American Medical Political Action Committee Board of Directors.

Sec 7. The House of Delegates shall have authority to create committees for special purposes and to appoint members of the Society who need not be members of the House of Delegates. Such committees shall report to the House of Delegates, and their members may be present to participate in the debate on their reports.

Sec 8. It shall receive for appropriate action the annual reports of the treasurer, executive vice president, and chair of the Board of Directors.

Sec 9. Unanimous consent of the House of Delegates shall be required for the introduction of any new resolution or business not filed in proper form with the executive vice president's office of the Society two months before the first session of the House of Delegates. This section shall not apply to new business or resolutions presented by the Board of Directors or any member thereof, the constitutional officers, committees of the Society or of the House of Delegates, or officers of the House of Delegates.

Sec 10. All questions of an ethical nature brought before the House of Delegates shall be referred to the Board of Directors without discussion.

Chapter III
Annual Election

Section 1. The House of Delegates, at its first session of the annual meeting, shall elect a Committee on Nominations consisting of one (1) delegate for each district, except that in any district having five hundred (500) or more regular and special members, there shall be elected one (1) additional delegate for each additional five hundred (500) members or majority fraction thereof. One (1) delegate representing the specialty sections shall also be appointed. Nominating committee members shall be limited to six (6) consecutive terms. Those committee members who have served six (6) consecutive terms upon adjournment of the final session of the 1994 House of Delegates annual meeting and following years shall have met this requirement. This committee shall become operative at the close of the final session of that annual meeting and shall function until the close of the final session of the following year's Annual Meeting. The incoming committee shall meet with the existent committee but without vote during the overlapping days of the annual meeting. Any vacancy occurring in the Committee on Nominations between the date of its formation and the time of its reporting shall be filled by appointment by the director or directors of the district in which the vacancy occurs, or if a nominating committee member is unable to attend a nominating committee meeting or is a candidate for an office a substitute for that member shall be named by the most senior director available from the affected district by written notification to the executive vice president prior to the meeting of the nominating committee, provided that if the vacancy or need for substitution occurs in the representation from the specialty sections, such vacancy or substitution shall be filled by ballot from among the section delegates. The Committee on Nominations shall convene at least two (2) months prior to the annual meeting of the House of Delegates to prepare a slate of candidates. This meeting, to be held at a time, date and location published to the general membership at least two (2) months before this meeting, shall include an open session of not less than one (1) hour to allow individual nomination of candidates. The Committee shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of the Board nominee for treasurer and the names of one or more members for each of the other positions to be filled.

Sec 2. The report of the Committee on Nominations and elections shall be the first order of business of the House of Delegates at the third session of the annual meeting.

Sec 3. The House of Delegates shall elect the president-elect, the treasurer, the speaker and vice speaker of the House of Delegates, and the delegates and alternates to the American Medical Association. Where there is no contest, a majority vote without ballot shall elect. All other elections shall be by separate ballot for each individual position, and a majority of the votes cast shall be necessary to elect. If no nominee receives a majority of the votes on the first ballot, the nominee receiving the lowest number of votes shall be dropped, except where there is a tie, and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of the votes cast.

Sec 4. Nothing in this chapter shall be construed

to prevent additional nominations being made from the floor by members of the House of Delegates.

Chapter IV
Duties of Officers

Section 1. The president is the chief constitutional officer of the Society. Within the limits of the Constitution, Bylaws, and policies of the House of Delegates and Board of Directors, the president shall have the following responsibilities and commensurate authority:

a. deliver an annual address to the House;
b. serve as a member with right to vote on the Board;
c. preside at meetings of the Executive Committee of the Board;
d. participate, ex officio and without the right to vote, in sessions of the House;
e. initiate and propose policies and programs that will further the goals and objectives of the Society for consideration by the House, Board, commissions and committees;
f. support and articulate policies and programs adopted by the Board and the House.
g. promote physician interest and active participation in the Society.

Sec 2. The president-elect shall act for the president in his absence or disability. If the office of president should become vacant, the president-elect shall succeed to the presidency. In case of vacancy in the office of both president and president-elect, the Board shall appoint one of its members as acting president until the next meeting of the House of Delegates.

Sec 3. The treasurer shall be responsible to the Board of Directors, and shall advise and assist it in making decisions on investment policy and financial matters. The duties of the treasurer shall include the following:

a. Be responsible for all funds due the Society, together with bequests and donations;
b. Pay money out of the treasury only on written order of the secretary;
c. Subject the treasurer's accounts to such examination as the House of Delegates may order;
d. Annually report on the financial standing of the Society, including a balance sheet and income and expense report;
e. Give bond in such amount as the Board may provide.
f. Serves as chair of the Finance Committee of the Board.

Sec 4. The executive vice president is the chief executive officer of the Society charged with the execution of policy as created and defined by the House of Delegates and the Board of Directors. The executive vice president shall serve as an ex officio, nonvoting member of the Board; be responsible to the Board and serve as its secretary; assist the Board and officers in making decisions and implementing actions; share convictions and argue their merits; perform the functions ordinarily assigned to the office of executive vice president, and make an annual report to the House of Delegates. "As chief executive officer the executive vice president shall, within the limits of the Constitution and Bylaws and Board operating policies, effectively perform the general managerial function for the Society and all of its divisions, activities, and personnel including employment and, as necessary, termination of all employees; be responsible for and have the necessary authority to direct, supervise, and coordinate all programs, projects and major activities of the Society and all wholly owned subsidiaries; formulate and recommend for approval of the Board basic policies and programs which will seek to achieve the objectives and goals of the Society; fully inform the Board on the condition and operation of the association; cooperate with the Board and Treasurer in establishing a program of fiscal responsibility for the Society including development, recommendation and upon approval, operation within an annual budget; act to insure that all funds, physical assets, and other property of the Society are appropriately safeguarded and administered; develop and maintain effective internal and external communications with the membership and other organizations and agencies, both public and private, so as to enhance the positions of the Society and the objectives of its membership; and through effective management and leadership, achieve economic, productive performance, forward-looking programming, and constructive growth of the Society."

Note: Following adoption of this Bylaw change (Sec. 4 above) in 1987, the Board agreed to develop and maintain a set of current "operating policies" between itself and the secretary to detail the more specific duties and expectations important to a good working relationship between the Board and the secretary.

Chapter V
Board of Directors

Section 1. The Board of Directors shall be the executive body of the Society. Between meetings of the House of Delegates it shall exercise the power conferred on the House of Delegates by the Constitution and Bylaws.

Sec 2. The Board shall meet during the annual meeting and at such other times as necessity may require, subject to the call of the chairman or on petition of three directors. It shall hold an annual meeting for purposes of organization and other business.

Sec 3. The Board shall elect a chairman and a vice chairman from among its voting members. It may create such further offices or combine or abolish them as it sees fit in the management of its affairs and in the discharge of its responsibilities. Its chairman shall submit an annual report to the House of Delegates including all major actions and policy decisions of the preceding year.

Sec 4. Each district director shall be the organizer

and mediator for the district. District directors shall visit each county in their district as needed for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and to keep informed of the activities of the component societies in the district. Each district director shall arrange for an annual conference or caucus with the societies or their delegates within the district, at which time information shall be disseminated concerning the activities of the State Medical Society and component societies within the district. Each district director and the resident physician director shall report as necessary to the Board. The necessary traveling expenses incurred by each director in the line of duties herein imposed may be allowed on a proper itemized statement, but this shall not be construed to include the expense of attending the annual meeting of the Society.

Sec 5. The Board of Directors shall be the judicial body of the Society. It may decide any questions of conduct or discipline of members, or any questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this Society. It shall develop and publish procedures for discipline, including denial of initial or continuing membership, for those physicians who fail to provide quality health care, failure to pay dues, loss of license to practice, or other cause. Its decisions in all cases shall be final, including the right to expel a member should a component society fail to do so after being so requested by the Board. The Board's right to original jurisdiction includes but is not limited to the right to decide cases when:

a. the affected parties reside within the boundaries of a single county medical society and that society does not wish to assume jurisdiction;
b. the affected parties reside in two or more component medical society jurisdictions. The Board also has within its authority the right to appoint a commission or commissions to which any or all such matters may be referred for investigation, evaluation and decision to acquit, admonish, or otherwise discipline as appropriate. A member may appeal to the Board the decision of such commission or the action of a county society as provided in Chapter X, Section 3. If the recommendation is for suspension or expulsion of a physician from Society membership, final action must be taken by the Board.

Sec 6. Charters shall be issued to county societies only on approval of the Board, with ratification by the House of Delegates, and shall be signed by the president and executive vice president of this Society. Upon the recommendation of the Board, the House of Delegates may revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and Bylaws.

Sec 7. In sparsely settled sections, the Board shall have authority to organize the physicians of two or more counties into societies. These societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

Sec 8. The Board shall provide for and superintend the issuance of all publications of the Society including proceedings, transactions and memoirs, and shall have the authority to appoint an editor of the Journal and such assistants as it deems necessary.

Sec 9. The Board shall select a qualified independent accounting firm and receive an annual audit of all accounts of this Society. With the treasurer, it shall supervise the investment of funds. The Board shall adopt an annual budget providing for the necessary expenses of the Society.

Sec 10. The Board may, by interim appointment, fill any vacancy in office not otherwise provided for which may occur during the interval between annual meetings of the House of Delegates, except a vacancy in the remainder of the term of the resident physician director shall be filled only by appointment by the chair of the resident physician section of the Society. The appointee shall serve until a successor has been elected and has qualified. When a district initially qualified for an additional director, such position shall be considered new and not a vacancy to which the Board is authorized to make an interim appointment. Such new position shall be filled by election at the next meeting of the House of Delegates in the manner provided by Article VI of the Constitution. The initial term shall be so established as to maintain the election of substantially one-third of the district directors each year.

Sec 11. The Board may elect as executive vice president one who need not be a physician or a member of the Society.

Sec 12. The Board shall provide such facilities for the Society as may be required to properly conduct its business.

Sec 13. The Board shall nominate a director to serve as treasurer and shall report the nominee to the Committee on Nominations in the manner provided by Chapter III of the bylaws.

Sec 14. There shall be an Executive Committee of the Board which shall consist of the president, the president-elect, the immediate past president, the chair and vice chair of the Board, the chair of the Finance Committee, the speaker, and two additional district directors to be appointed annually by the chair of the Board. The Alliance president and president-elect shall be ex-officio non-voting members. The Executive Committee shall possess and may exercise all the powers of the Board of Directors between meetings of the Board. The Executive Committee shall meet prior to the meetings of the Board and at such other times as may be required, subject to the call of the chair or on petition of three voting members, and shall report all actions taken by it to the next meeting of the Board, for its consideration.

Chapter VI
Commissions and Committees

Section 1. The Board shall appoint such commissions and committees, either permanent or ad hoc, as it

deems necessary to properly conduct the affairs of the Society. Membership on such committees and commissions shall be limited to members of the Society and its Alliance. Nonmembers of the Society or its Alliance may be appointed as special representatives should their expertise and knowledge be of benefit to the goals of such commissions or committees. Such individuals shall not have the right to vote or hold office, except special representatives appointed to the Commission on the Center for Medical Practice Research and Education shall have the right to vote. Each commission and committee shall have the duty of being informed on matters within the area of its special interest. They shall represent the Society's interests by continual contacts with voluntary and governmental agencies having related concerns with the intention of coordinating efforts to serve the health interests of the people of Wisconsin. They shall develop recommendations from their studies and activities for action by the Board or House of Delegates.

Sec 2. Specialty sections shall be regarded as special committees of the Society from which the Board or any commission or committee may seek advice and assistance on matters of special or general concern to the profession and the health of the people of Wisconsin. The specialty sections will be expected to give special requests prompt consideration and response so as to enable the Society to make maximum use of their resources.

Chapter VII
Dues and Assessments

Section 1. The annual dues and assessments of this Society shall be determined by the House of Delegates and shall be levied per capita on the members. Dues and assessments shall be payable as determined by the Board of Directors. Any member whose current year's dues have not been received by the executive vice president on or before the dues payment deadline, as established by the Board of Directors, shall be deemed in arrears and shall be removed from the membership rolls of the county society and this Society until such time as full dues for the current year have been received.

Sec 2. The record of payment of dues and assessments on file in the offices of this Society shall be final as to the fact of payment by a member and to the right to participate in the business and proceedings of the Society or the House of Delegates and to any other benefits and privileges of membership.

Chapter VIII

The Board of Directors shall adopt ethical guidelines for the members of this Society.

Comment: On July 18, 1981 the Board of Directors adopted the Principles of Medical Ethics of the AMA as the ethical guidelines of the Society.

Chapter IX

The current edition of Sturgis Standard Code of Parliamentary Procedure governs this organization in all parliamentary situations that are not provided for in the law or in its charter, constitution, bylaws, or adopted rules.

Chapter X
County Societies

Section 1. All present county societies or those that may hereafter be organized in this state shall, upon application to the Board of Directors, receive charters from this Society, provided that their constitutions and bylaws have been submitted to the Board and found in conformity with the Constitution and Bylaws of the State Medical Society. All revisions shall be submitted to the Society, approved by the Board, and filed with the executive vice president. Where a county society has lost or misplaced its constitution and bylaws, the model constitution and bylaws for county medical societies, as last approved by the Board, shall be deemed to apply.

Sec 2. Only one component medical society shall be chartered in each county.

Sec 3. Any physician who may feel aggrieved by the action of the society of his county in suspending or expelling him shall have the right to appeal to the Board of Directors of the State Society. Its decision shall be final. A county society shall at all times be permitted to appeal or refer questions involving membership to the Board of the State Society for final determination. The mechanisms and procedures which apply to the appeal process shall be those adopted by the Board.

Sec 4. Each component county society shall elect one or more delegates and may elect an equal number of alternates to substitute for any absent delegates from that component society, for a term of two calendar years, to represent it in the House of Delegates of this Society, in accordance with Chapter II, Section 1, of these Bylaws. The term of office shall begin on January 1 of the year succeeding the election of such delegates and alternates.

Sec 5. The secretary of each county society shall keep a roster of its members.

Chapter XI
Specialty Sections

Section 1. The House of Delegates shall establish specialty and special sections within the Society. It shall have the power to combine, enlarge, or discontinue any or all of such sections so established using the following guidelines:

a. For specialty section to be designated it must represent a specialty which is represented in the American Medical Association House of Delegates and
b. Have at least twenty (20) members of the specialty who are members of this Society.
c. If no representative from the specialty section registers as a representative of that section for three (3) consecutive annual meetings, the specialty section will be dropped with the option of reapplying after one year, provided the above criteria are met.

d. From time to time special sections not meeting the above criteria may be established by the House of Delegates.

Sec 2. Such sections so established shall be based upon those divisions of medicine in which the various members possess a special interest. Qualifications for membership in any section shall be established by the members of such section, subject to approval of the Board of Directors, Scientific meetings of a section shall be open to all members in good standing of the State Medical Society.

Sec 3. The officers of each section shall be elected by and from its membership. The terms of such officers shall be for one year, but any officer may be reelected.

Sec 4. No section shall have the power to bind the State Medical Society by any resolution or other action. No such resolution or action shall be publicized unless it shall first have been approved by the House of Delegates, or by a majority of the Board when the House is not in session. No resolution adopted by any section shall be effective until likewise so approved.

Sec 5. Each section, except the two medical student special sections, shall elect a delegate and an alternate to the House of Delegates. The term shall be for two calendar years without limitation on number of terms.

Sec 6. There shall be two special sections for medical student members of the Society, one representing the University of Wisconsin and one representing the Medical College of Wisconsin, which shall each be entitled to elect one delegate and one alternate to the House of Delegates for each forty candidate members or majority fraction thereof in this Society determined as of the close of the calendar year preceding the first session of the House of Delegates Annual Meeting, provided, however, that these sections shall each be entitled to at least one delegate and one alternate. The term shall be for one calendar year without limitation on number of terms.

Sec 7. The resident physician section shall be entitled to elect one section member, for a term of one year not to exceed four terms, as the resident physician director to the Board of Directors.

Sec 8. The specialty sections of the Society shall be considered an integral part of the working committee structure of the Society as outlined in Chapter VI of these Bylaws.

Chapter XII
Amendments

These Bylaws may be amended at any annual meeting by a majority vote of the delegates present, if the proposed amendment has been properly submitted to the House of Delegates and has laid over for one session of that annual meeting.

American Medical Association Principles of Medical Ethics

PREAMBLE: The medical profession has long subscribed to a body of ethical statements developed primarily for the benefit of the patient. As a member of this profession, a physician must recognize responsibility not only to patients, but also to society, to other health professionals, and to self. The following Principles adopted by the American Medical Association are not laws, but standards of conduct which define the essentials of honorable behavior for the physician.

I. A physician shall be dedicated to providing competent medical service with compassion and respect for human dignity.

II. A physician shall deal honestly with patients and colleagues, and strive to expose those physicians deficient in character or competence, or who engage in fraud or deception.

III. A physician shall respect the law and also recognize a responsibility to seek changes in those requirements which are contrary to the best interests of the patient.

IV. A physician shall respect the rights of patients, of colleagues and of other health professionals, and shall safeguard patient confidences, within the constraints of the law.

V. A physician shall continue to study, apply and advance scientific knowledge, make relevant information available to patients, colleagues and the public, obtain consultation, and use the talents of other health professionals when indicated.

VI. A physician shall, in the provision of appropriate patient care, except in emergencies, be free to choose whom to serve, with whom to associate, and the environment in which to provide medical services.

VII. A physician shall recognize a responsibility to participate in activities contributing to an improved community.

County Medical Society Officers

Key: President (P), Immediate Past President (IPP), President Elect (PE) Vice President (VP), Secretary (S), Treasurer (T), Secretary/Treasurer (ST), Executive Secretary (ES), Executive Vice President (EVP), Executive Director (ED). As of 6/25/99.

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11516 N Port Washington Rd, #202
Mequon 53092-0277

D - Sally M. Schlise, MD

Radiology

C - Ralph Colburn, MD
4335 Schneider
Oregon 53575-2326

VC - Michael A. San Dretto, MD
325 N Commercial St
Neenah 54956

ST - Anthony L. Merlis, MD
6601 Grand Teton Plaza
Madison 53719-1049

D - Fred E. Klein, MD

AD - Timothy T. Flaherty, MD

Resident Fellow

COC-Jesus L. Borrillo, MD
1521 S 98th St, #208
West Allis 53214-4180

COC -Kawsar R. Talaat, MD
2535 N Prospect Ave, #217
Milwaukee 53211-4136

ST - Kerry L. Drain, MD
8827 W Herbert Ave
Milwaukee 53225

Surgery

C - Louis C. Bernhardt, MD
5418 Old Middleton Rd, #204
Madison 53705-2658

ST - James A. Avery, MD
W5823 Lost Arrow Rd
Fond du Lac 54937-9227

D - James P. Quenan, MD

AD - Jeffrey A. Blink, MD

Thoracic Medicine

C - Basil Varkey, MD
5000 W National
Milwaukee 53295

ST - George B. Haasler, MD
9200 W Wisconsin Ave
Milwaukee 53226

D - Edward R. Winga, MD

Urology

ST- John D. Wegenke, MD
1 S Park St, 2nd Floor
Madison 53715-1349

D - Dirk T. Fisher, MD

AD - Randle E. Pollard, MD

Young Physicians

C - Wendy L. Larson, MD
9200 W Wisconsin Ave
Milwaukee 53226-3522

VC - William D. Falco, MD
5308 Eighth Ave
Kenosha 53140

D - William D. Falco, MD

Officers of Wisconsin Specialty Societies

Key: President (P), President-Elect (PE), Immediate Past President (IPP), Vice President (VP), Secretary (S), Treasurer (T), Secretary Treasurer (ST), Executive Director (ED), Executive Secretary (ES). As of 6/25/99.

Wisconsin Allergy Society
P - John E. Basich, MD
10950 W Forest Home
Hales Corners 53130

ST - Reid M. Olson, MD
2711 Allen Blvd
Middleton 53562

ST - Judith Arnold-Major, MD
4261 W Highland Blvd
Milwaukee 53206-2713

Wisconsin Society of Radiation Oncologists
P - Carl E. Olson, MD
9910 N Corey Ln
Mequon 53092-6207

VP - Mitchell H. Pincus, MD
7045 N Belmont Ln
Fox Point 53217-3614

S - Christopher J. Schultz, MD
8700 W Wisconsin Ave
Milwaukee 53226-3512

T - William J. Pao, MD
11516 N Port Washington Rd, #202
Mequon 53092-0277

Wisconsin Radiological Society
P - Ralph M. Colburn, Jr., MD
4335 Schneider
Oregon 53575-2326

IPP - Thomas F. Berns, MD
10534 N Country Club Dr, #31W
Mequon 53092

VP - Michael A. San Dretto, MD
325 N Commercial St
Neenah 54956

ST - Anthony L. Merlis, MD
6601 Grand Teton Plaza
Madison 53719-1049

Wisconsin Surgical Society
P - Eberhard A. Mack, MD
600 Highland Ave
Madison 53792

IPP - Louis C. Bernhardt, MD
5418 Old Middleton Rd, #204
Madison 53705-2658

ST - James A. Avery, MD
W5823 Lost Arrow Rd
Fond du Lac 54937-9227

Wisconsin Chapter: American College of Surgeons
P - Mark B. Adams, MD
9200 W Wisconsin Ave
Milwaukee 532226

PE - Louis Bernhardt, MD
1313 Fish Hatchery Rd
Madison 53715

VP - Terry Gueldner, MD
600 York St
Manitowoc 53220

IPP - William D. Turnipseed, MD
600 Highland Ave, H4/7300
Madison 53792-0001

ST - David D. Schmitt, MD
1111 Delafield St, #209
Waukesha 53188-3403

Wisconsin Thoracic Society
P - Basil Varkey, MD
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Milwaukee 53295

IPP - Pamela A. Wilson, MD
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H6/380 CSC
Madison 53705

Wisconsin Urological Society
P - Bruce M. Neal, MD
2021 S Webster Ave
Green Bay 54301

ST - John D. Wegenke, MD
1 S Park St, 2nd Floor
Madison 53715-1349

Wisconsin Society of Addiction Medicine
IPP - Dean E. Whiteway, MD
1836 South Ave
La Crosse 54601

Wisconsin Society of Anesthesiologists
P - Robert E. Kettler, MD
2570 N 85th St
Wauwatosa 53226-1914

Wisconsin Chapter: American College of Cardiology
P - Lee S. Wann, MD
2801 W Kinnickinnic River Pkwy, #575
Milwaukee 53215-3606

Wisconsin Dermatology Society
P - Marcelle Neuburg, MD
9200 W Wisconsin Ave
Milwaukee 53226

ST - George T. Reizner, MD
2880 University Ave
Madison 53705

Wisconsin Chapter: American College of Emergency Physicians
P - Jill P. Harman, MD
1506 S Oneida St
Appleton 54915

VP - William C. Haselow, MD
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Mequon 53092-8600

S - Thomas W. Zoch, MD
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Neenah 54956-2883

T - Steven D. Driggers, MD
2321 Stone Rd
Manitowoc 54220-2233

ED - Karen Teske-Osborne
PO Box 9282
Madison 53715-0282

Wisconsin Academy of Family Physicians
P - Susan K. Kinast-Porter, MD
515 22nd Ave
Monroe 53566-1569

PE - Donn D. Fuhrmann, MD
1420 Algoma St
New London 54961-2104

VP - Thomas J. Grau, MD
815 10th Ave S
La Crosse 54601-4764

ST - Douglas J. Bower, MD
1000 N 92nd St
Milwaukee 53226

ED - Larry Pheifer
10612 W Sunset Woods Ln
Mequon 53097

Wisconsin Chapter: American College of Physicians-American Society of Internal Medicine
P - Franklin M. Graziano, MD
853 Tipperary Rd
Oregon 53575

VP - John K. Paulson, MD
2501 Main St
Stevens Point 54481

Wisconsin Neurological Society
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9200 W Wisconsin Ave
Milwaukee 53226

PE - Paul Barkhaus, MD
PO Box 26536
Milwaukee 53226

IPP - Henry Schutta, MD
3510 Blackhawk Dr
Madison 53705-1406

S - Percy Karanjia, MD
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Marshfield 54449-5777

T - William Wanamaker, MD
1901 S Webster Ave
Green Bay 54301-2281

Wisconsin Neurosurgical Society

P - James P. Hollowell, MD
9200 W Wisconsin Ave
Milwaukee 53226

VP - Spencer J. Block, MD
2350 W Villard, #105
Milwaukee 53209

ST - Gregory R. Trost, MD
621 Science Dr
Madison 53711

Wisconsin Section: American College of Obstetrics and Gynecology

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1400 75th St
Kenosha 53143-1522

VP - Douglas W. Laube, MD
600 Highland Ave, H4/654
Madison 53792-0001

ST - Patricia A. Barwig, MD
19475 W North Ave, Ste 400
Brookfield 53045

Wisconsin Society of Obstetrics and Gynecology

P - Michael A. Schellpfeffer, MD
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Kenosha 53143-1522

VP - Douglas W. Laube, MD
600 Highland Ave, H4/654
Madison 53792-0001

ST - Patricia A. Barwig, MD
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Brookfield 53045

Wisconsin Academy of Ophthalmology

P - Kevin T. Flaherty, MD
PO Box 689
Wausau 54402-0689

ST - James E. Memmen, MD
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Green Bay 54304-1979

ED - Rich Paul
10 W Phillip Rd, #120
Vernon Hills, IL 60061-1730

Wisconsin Orthopedic Society

P - John R. Whiffen, MD
35 Bayside Dr
Madison 53704-5901

ST - Patrick W. Cummings, Jr, MD
19475 W North Ave, #201
Brookfield 53045-4199

Wisconsin Society of Otolaryngology – Head and Neck Surgery

P - Bruce H. Campbell, MD
8700 W Wisconsin Ave
PO Box 199
Milwaukee 53226

ST - Thomas M. Kidder, MD
9200 W Wisconsin Ave
Milwaukee 53226-3522

Wisconsin Society of Pathologists

P - Gary F. Neitzel, MD
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West Allis 53226

PE - Alexander Romashko, DO
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Waukesha 53188-9742

VP - Michael J. Phillips, MD
915 E Summit Ave
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S - Robert B. Hall, MD
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T - Scott B. Reich, MD
36 S Brooks St
Madison 53715

Pakistani Physicians Society of Wisconsin

P - Bhupendra O. Khatri, MD
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PE - Mohini K. Raisinghani, MD
12220 N Lakeshore Dr
Mequon 53092-3353

T - Kesavan Kutty, MD
5000 W Chambers St
Milwaukee 53210

S - Sanat Gandhi, MD

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Monona 53716

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P - Celestino M. Perez, MD
2040 W Wisconsin Ave, #754
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IPP - Rolando M. Mendiola, MD
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Milwaukee 53221-2651

S - Violeta A. Singson, MD
2040 W Wisconsin Ave, #754
Milwaukee 53233-2012

Wisconsin Society of Physical Medicine and Rehabilitation

P - Alka Kohli, MD
725 American Ave
Waukesha 53188

ST - Robert M. Stern, MD
5000 W Chambers St
Milwaukee 53210-1650

Wisconsin Society of Plastic Surgeons

P - Paul W. Loewenstein, MD
2300 N Mayfair Rd, #795
Milwaukee 53226

ST - William A. Wood, MD
20 S Park St, #360
Madison 53715-1508

Wisconsin Society for Preventive Medicine

P - Jane K. Sliwinski, MD
3801 Ken Ridge Ln
Green Bay 54313-8272

Wisconsin Psychiatric Association

P - Jeffrey P. Holmgren, MD
8665 310th Ave, NE
North Branch, MN 55056-6516

PE - Mary Alice Houghton, MD
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Madison 53704-1521

S - Joseph B. Layde, MD
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T - Diana J. Lampsa, MD
1425 Memorial Dr
Manitowoc 54220-6700

ED - Edward S. Levin, Esq.
PO Box 1109
Madison 53701-1109

Wisconsin Council of Child and Adolescent Psychiatry

P - Joseph Bergs, MD
5735 Durand Ave
Racine 53406-5520

PE - Clarence Chou, MD
10028 N Miller Dr, #2W
Mequon 53092-6186

Medical Organizations and Government References

American Medical Association: 312-464-5000

American Cancer Society, WI: 414-523-5500

American Diabetes Association: 800-342-2383

American Lung Association: 800-586-4872

BadgerCare Hotline: 800-362-3002

Chiropractic Association, WI: 608-256-7023

Dietetics Association, WI: 608-269-0042

Department of Regulation and Licensing: 608-266-2112

Drug Enforcement Agency: 312-353-1234

Dental Association, WI: 414-276-4520

Family Physicians, WI Academy: 414-512-0606

Heart Association, WI Chapter: 800-242-9236

HMOs, Association of WI: 608-255-8599

Homecare Association, WI: 608-833-8118

Hospice Organization of WI: 608-233-7166

Medical Examining Board: 608-266-2811

Medicaid (EDS): 608-221-9883 or 800-947-9627

Medicare (WPS): 608-221-3218

Office of the Commissioner of Insurance: 608-266-3585

Office of the Inspector General (US Dept of Health and Human Services): 202-619-3148

Osteopathic Physicians and Surgeons, WI: 414-567-0520

Patients Compensation Fund: 608-266-6830

Psychological Association, WI: 608-251-1450

Public Health Association, WI: 800-545-0635

Rural Health, Office, WI: 800-488-9512

WI Health and Hospital Association: 608-274-1820

WI Nurses Association: 608-221-0383

WI Primary Health Care Association: 608-277-7466

Worker's Compensation: 608-266-9512

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or (218) 829-4901
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(·frend) n.: A favored companion.

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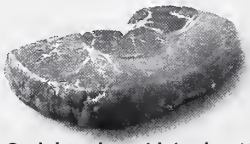
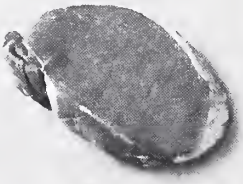
Pork tenderloin*
4.1g Total fat
1.4g Sat. fat



Pork boneless sirloin chop**
5.7g Total fat
1.9g Sat. fat

Pork boneless loin roast*
6.1g Total fat
2.2g Sat. fat



Pork boneless top loin chop**
6.6g Total fat
2.3g Sat. fat

Pork loin chop**
6.9g Total fat
2.5g Sat. fat

Pork boneless sirloin roast*
7.0g Total fat
2.5g Sat. fat

Pork rib chop**
8.3g Total fat
2.9g Sat. fat

Pork boneless rib roast
8.6g Total fat
3.0g Sat. fat

*Roasted. **Broiled. (Based on 3 oz. cooked meat, skinless or trimmed.)
A chicken thigh contains 9.3g of fat and 2.6g of saturated fat
Source for pork and chicken data: USDA Composition of Foods Handbook 8 Series.
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SMS Financial Report

Balance Sheet
As of Dec 31, 1998

Assets	
Current assets	
Cash and cash equivalents	$1,771,315
Investments	2,244,871
Trade accounts receivable (net)	112,260
Due from related parties	233,223
Due from affiliates	53,885
Accrued investment income	34,879
Prepaid expenses	98,744
Total current assets	$4,549,177
Property and equipment – at cost	
Buildings and improvements	$2,624,056
Furniture and equipment	1,939,061
Less accumulated depreciation	(2,821,679)
Land	72,408
Construction in Progress	624,781
Total property and equipment	$2,438,627
Other assets	
Long term investment	$ 249,000
Deferred compensation plan assets	1,089,791
Investment in subsidiary	(11,411)
Note receivable	1,019,085
Total other assets	$2,346,465
Total Assets	**$9,334,269**
Liabilities	
Current liabilities	
Current maturities of long-term debt	$ 57,937
Trade accounts payable	395,985
Deferred revenues	1,585,251
Accrued payroll and vacation pay	166,438
Accrued property, payroll & sales taxes	134,940
Accrued health plan costs	71,617
Other	23,612
Total current liabilities	$2,435,780
Long-term debt, less current maturities	$ 442,063
Deferred compensation payable	$ 1,089,791
Accrued pension costs	$ 894,344
Membership equity	$4,472,291
Total Liabilities and Membership Equity	$9,334,269

Statement of Income and Expenses
Year ended Dec 31, 1998

Income	
Membership dues	$3,671,677
Sales and services	1,509,863
Investment income	177,622
Market value adjustment	317,626
Royalty income	282,052
Gain on investments sold	59,725
Rent	102,154
Grants	91,908
Membership Fee Replacment Income	83,125
Total Income	$6,295,752
Expenses	
Payroll and employee benefits	$3,377,517
Travel and conference expenses	639,227
General and administrative	1,344,627
Occupancy	271,519
Professional fees and outside services	587,622
Interest	8,584
Pension	252,477
Other	1,334
Total Expenses	$6,482,907
Expenses in excess of income	$ (187,155)
Equity at Jan 1, 1998	$4,729,794
Equity in loss of subsidiary	$ (70,348)
Equity at Dec 31, 1998	$4,472,291

• • •

The above financial statements of the State Medical Society of Wisconsin are part of the Treasurer's report to the House of Delegates. The annual certified audit, prepared by Grant Thornton LLP, independent certified public accountants, is on file at Society headquarters. Members may review the audit by inquiry to the SMS Executive Vice President.

SMS departments serving members needs

Business Services & Support performs all necessary accounting tasks for the Society, the SMS Foundation, SMS Holdings Corporation and its subsidiaries; as well as financial and investment activities.

The Center (The Henry A. and Irene S. Anderson Center for Medical Practice Research and Education) is dedicated to the evaluation of all types of treatment modalities to determine best practices and to involve physicians directly in this inquiry. *(See related article on page 47.)*

Educational Programs & Services is responsible for practice management seminars and workshops, including in-house training and coding consultations for physician offices and assisting with coding and billing questions, chart review, corporate compliance program development, and consulting services. *(See related article on page 41.)*

General Administration has overall responsibility for activities of the directors, officers, Wisconsin delegation to the AMA, the House of Delegates, councils and task forces.

Human Resources provides these services to SMS staff: recruitment, compensation, employee relations, training and development, and benefits administration.

Marketing & Communications is responsible for media relations, public education and member communications. This department coordinates efforts to assure that communications to members, media and Wisconsin public are timely, accurate, consistent and effective. These efforts include an enhanced statewide media relations plan, with the objective of further educating the public government and health care industry regarding SMS positions on given public health issues. In addition, this group produces these official SMS communication vehicles: *WMJ*, the bi-monthly medical journal; *Medigram*, the monthly newsletter, On-Air Health Care, a weekly radio news feature, and wismed.com, the SMS web site.

Meetings Management is responsible for planning, promoting and executing in excess of 350 meetings each year, including the Annual Meeting. Staff is also involved in the planning and development of other SMS programs. The department also coordinates all efforts surrounding the SMS CME accreditation program. *(See related article on page 39.)*

Membership & Professional Relations provides service to SMS members, directs feedback from physicians, physician groups, hospital and clinics to the appropriate bodies at SMS. Field Directors work with members based on interests, practice type and location. They attend county medical society meetings, hospital and clinic medical staff meetings, and make hospital lounge visits and small group and individual meetings to update physicians on legislative issues, public health issues and programs.

The department is responsible for member recruitment efforts and statewide health projects.

Office of General Counsel provides legal assistance to individual members, groups and representation for the organization as a whole. Among the review services offered are hospital medical staff bylaws, physician employment and managed care contracts and county medical society bylaw reviews.

Peer review services housed within the office include the Statewide Physician Health Program, the Medicaid Medical Audit Committee that advises the State Division of Health, the Council on Mediation and Peer Review, and liaison with MetaStar. *(See related articles on pages 36 and 37.)*

Professional & Public Affairs is responsible for the combined activities of Government Relations, Policy & Research, WISPAC, the Society-sponsored political action committee, and Physicians for Better Government.

Government Relations represents the SMS before the state and federal governments through lobbying efforts, political action, candidate support, and political education activities. Staff reviews and analyzes proposed legislation and administrative rules; formulates legislation to carry out the Society's legislative initiatives; and develops modifications to proposed legislation or regulations to achieve the Society's objectives or resolve concerns on specific issues. *(See related article on page 43.)*

Policy & Research is primarily responsible for performing all background research on health care issues facing organized medicine and reporting its finding back to SMS working groups. Policy analysts also provide research on legislation, state and national regulation and other issues to individual physicians and their patients.

Strategic Information Systems & Technology (SIST) is a support group for Society staff, SMS Holdings staff and Society members. This department serves a vital role in providing the tools for efficient and effective information flow.

SMS Foundation is a non-profit corporation that fosters the knowledge and development of worthy educational, charitable, scientific research, and public health projects and assists deserving medical students through the student loan program and scholarship funds. *(See related article on page 44.)*

SMS Holdings

SMS Insurance Services, Inc. is the only Wisconsin-based, physician-owned insurance firm exclusively serving the medical community. Its sole mission is meeting the insurance needs of Wisconsin physicians, hospitals, clinics, related health care providers, their employees and families. *(See related article on page 42.)*

Lakeside Association Services, Inc. is an association management company providing a variety of essential services to non-profit organizations, including a number of medical societies in Wisconsin. Lakeside currently manages over 20 organizations, and specializes in providing service to organizations representing health care and public health professionals. Lakeside offers expertise and assistance in a wide variety of areas and provides non-profit organizaitons with quality, efficient, cost-effective services.

SMS Councils change structure, scope

To streamline the work of the SMS commissions, and to better meet the goals of the new strategic plan, a new commission structure was approved at the SMS annual meeting. The number of commissions was reduced from 15 to eight, and these new entities are called "councils" to denote increased responsibility and scope.

As the Board of Directors developed the strategic plan and approved the 1999 budget, they anticipated a significant restructuring and refocusing of the SMS commissions and re1ated activities to best meet the overall goals outlined in the Society's strategic plan. Moreover, growing research demonstrates that physicians practicing in today's environment are often more willing to commit to organizational activities that have a specific goal within a definite time frame. Additionally, critical issues and priorities often evolve quickly and require a more flexible organizational review and response.

Therefore, the Board of Directors requested that an evaluation be made of the current organizational structure of SMS commissions. Input regarding possible restructuring was solicited from SMS commission members. In addition, information was obtained from other medical groups as well as SMS staff who work directly with the commissions, and a growing body of research about a physician's willingness to participate in organizational activities was analyzed.

The resulting councils are:

- Health of the Public,
- Health Care Financing and Access,
- Ethics and Judicial Affairs,
- Governmental Affairs,
- Mediation and Peer Review,
- *Wisconsin Medical Journal*,
- Medical Education, and
- Medical Practice Research and Education.

Task forces will be developed on an as-needed, short-term basis to work on specific issues.

This proposal should result in increased opportunity for physician involvement in SMS policy. Bu utilizing task forces, more physicians can participate. And adopting a more flexible, ad hoc approach will allow for quicker responses to emerging or evolving issues of importance to patients and members. All former commission members have been invited to become members of the councils and/or one of the task forces.

Statewide Physician Health Program

The Statewide Physician Health Program (SPHP) provides compassionate assistance to Wisconsin physicians suffering from any condition which has the potential to progress to impairment. These conditions include chemical dependency, psychiatric illness, stress, abusive-disruptive behavior, senility, compulsive gambling, behavioral disorders and physical impairment. The Statewide Program Managing Committee establishes policies and implements program activities. As a subcommittee of the Council on Mediation and Peer Review, the Managing Committee and its activities are protected by way of confidentiality and immunity under state and federal law.

SPHP offers education, identification, assessment and compassionate intervention. Physicians who are intervened are referred to acceptable facilities for evaluation or treatment and monitored for a minimum two-year follow-up after completion of initial therapy. The SPHP Medical Director provides continuous program leadership, conducts physician interventions and is available to Wisconsin physicians and hospitals to offer counsel regarding local problems.

Phase I: Education and prevention

Target individuals and groups are educated to learn symptoms of physician impairment, techniques of early identification and prevention, resources available for intervention, assessment and/or treatment and other problems associated with impairment. The SPHP Medical Director presents educational and prevention programs to the following target groups:

- **Physicians** through meetings of hospital medical staffs, clinic groups, county medical societies, statewide continuing medical education, accredited seminars and presentations to faculty and students in Wisconsin's medical schools.
- **Hospital Personnel** including hospital administrators and medical directors, chiefs of medical staffs and others. Consultation with medical staff officers on establishing effective physician health committees or programs in hospitals is available. "Guidelines for Physician Aid Committees of Hospital Medical Staffs" have been distributed to all Wisconsin general hospitals with encouragement to implement them in cooperation with medical staffs.
- **Pharmacists and nurses** through lectures at meetings in combination with physician and hospital personnel.

Phase II: Intervention assessment and treatment

Successful programs include the availability of physician interveners to undertake compassionate contact with physicians identified as possibly impaired. The SPHP Medical Director or other trained physicians are available to meet with and urge impaired colleagues to enter suitable facilities for evaluation, treatment or both. Programs or facilities considered suitable are those which comply with Statewide Physician Health Program requirements.

The initial intervention is always a compassionate encounter. A punitive or coercive approach is never considered until all benevolent measures have been exhausted. An intervener's continuous concern is the professional and personal well-being of a colleague and the quality of health care for patients. Physicians suffering from chemical dependency achieve a more satisfactory recovery status when they receive intensive treatment in facilities which espouse the medical model of therapy, under which the physician is seen by the physician addiction specialist on a frequent, if not daily, basis. Within this model, SPHP maintains certain requirements for satisfactory primary treatment for chemical dependency.

Physicians suffering from emotional illness or senility, or from the sequela of stress when these are uncomplicated by chemical dependency, are encouraged to seek assessment, treatment or both through Statewide Program approved facilities or practitioners.

SPHP adheres to the policy that satisfactory recovery can only be realized through a monitored two-year recovery period. It considers the two years after initial treatment to be vital to assuring continued recovery.

Phase III: Benevolent assistance

In addition to the burden of impairment, some physicians are financially unable to pay the cost of the in-patient or out-patient care. By estimate, 10 percent of Wisconsin impaired physicians have either no or inadequate health insurance. The

financial resources of some physicians essentially have been depleted. For 60 percent of chemically dependent physicians, residence in treatment and recovery homes (average of three months stay) is essential for completion of the two-year recovery program.

With SMS and SMS Foundation Board approvals, SPHP established a Physicians Benevolent Assistance Fund to provide low-interest loans to assist physicians to pay for in-patient and out-patient services. Loans are repayable after return to medical practice.

Phase IV: Protecting the public

SPHP maintains formal linkage with the Wisconsin Medical Examining Board (MEB) through the Coordinating Council on Physician Impairment. Consisting of three SMS members and three MEB members, the Council coordinated activities so that appropriate information is shared and the Council can take action in the event a physician fails to respond to treatment or refuses to enter rehabilitation. By majority vote, the Council may refer a physician to the MEB in the rare instance where the health of the public may be jeopardized. The Coordinating Council presents a desirable balance of concerns and interest between the voluntary assistance program of the State Medical Society and the Wisconsin statutory licensing and disciplinary body. Thus, the Council is an appropriate step in the reporting process if necessary during attempts at physician rehabilitation where difficulty may be encountered. For further information contact Sonia Porter at the SMS.

SMS Physician Support Program

The SMS Commission on Medical Liability and Risk Management created the Physician Support Program in 1987 to help physicians and their families cope with the stress of being sued for malpractice. The program provides emotional support, practical information, and an opportunity for the physician and spouse to share their feelings with sympathetic listeners.

How the program works

When a physician is sued for medical malpractice, the SMS sends member physicians a packet of materials that includes a letter explaining the Physician Support Program, advice on coping with the experience, and a list of physicians and spouses who have volunteered to serve as members of a special support group. The packet also contains a description of the Medical Mediation Panel System and helpful materials for the physician's spouse. Non-members are sent a letter informing them of the program and to contact the SMS for a packet.

The Physician Support Group

The purpose of the support group is to offer emotional support and practical advice for dealing with a medical malpractice suit. The emphasis is on personal contact and communication between the physician or spouse requesting help and the panel member. The setting of meetings is left entirely to the parties involved, and may be limited to telephone calls, if desired. Topics covered during meetings are expected to be wide ranging, (e.g. feelings of hostility, fear, loss of confidence, difficulty in making decisions, and withdrawal from the family), but discussions of the specific merits of the case are avoided. The emphasis is on individual interaction and open and frank discussions. There are no group sessions. Confidentiality is assured in all cases.

Any practicing physician who has been a respondent in a malpractice action and feels he or she can offer emotional support to a colleague in a similar situation is encouraged to volunteer as a support group member. Spouses who can provide support for their counterparts are also invited to participate. Each panelist receives basic information about the program and advice on how to be an effective participant.

Physicians interested in providing peer support through the Physician Support Program should contact Erin Warner at the SMS.

Resolving complaints about medical care

Medical care is a very personal matter between patient and physician, but medicine is not an exact science. Each patient is different and treatment approaches may vary greatly from patient to patient.

Doctors and patients sometimes do not agree on how proper care is defined, and misunderstandings can arise about what the physician hopes to accomplish and what the patient expects. When this occurs, it is important that the patient first discuss any questions and concerns regarding medical treatment with his or her physician. In the event that such differences are not resolved at that level, the State Medical Society offers a means for resolving these differences.

Council on Mediation and Peer Review

The Council on Mediation and Peer Review is able to assist patients in resolving complaints about medical care. Council members represent many different specialties. Any person may telephone or write the State Medical Society to file a complaint. A staff person will assess the problem, try to resolve it informally, and if necessary, submit the problem to the Council as a formal complaint.

How to file a complaint

Only written complaints against physicians are considered by the Council. The complainant should include the name and address of the physician against whom the complaint is being made, along with details of the situation prompting the complaint, as well as his/her own address and telephone number. If necessary, the State Medical Society will request written authorization for copies of medical records relating to the complaint. All information received regarding a complaint remains confidential.

The Council Process

When the Council determines it may assist the complainant, it must be decided at what level the complaint will be handled. The Council on Mediation and Peer Review handles the complaint if the physician and patient reside in separate counties. If both parties reside within the boundaries of a single county medical society, the complaint will be forwarded to that county society if the county has a process in place to resolve complaints. If the county will not or cannot handle the complaint, the Council retains jurisdiction.

Next, a copy of the complaint is mailed to the physician for his/her response. Once a response is received, both sides of the complaint are referred to a member of the Council in the same specialty as the physician about whom the complaint is lodged. Once the review is completed, a reply is sent to both the physician and the patient indicating the results of the review. The Council may take a number of actions, including finding simple miscommunications, or directing the physician's attention to possibly inappropriate conduct or service, or referring the complaint to the SMS Board of Directors, who then may refer it to the Wisconsin Medical Examining Board (MEB). The MEB is the official state agency having authority to suspend or terminate licensure. An appeals process is in place for both the complainant and the physician if needed.

Types of complaints handled by the Council

The Council process is intended to be an informal remedy for patient grievances. The Council handles physician complaints relating to quality-of-care issues. The Council does not review complaints regarding fees and billing.

A more formal mechanism is available through the MEB. Staff may initially refer the complainant to the Medical Examining Board depending on the seriousness or nature of the complaint. The Council will not review a complaint that is simultaneously being reviewed by the MEB or if legal action has been initiated.

For more information regarding the Council on Mediation and Peer Review process, contact the State Medical Society of Wisconsin.

PO Box 1109
Madison, WI 53701
(608) 257-6781
1-800-362-9080.

Accreditation Program for Continuing Medical Education

The SMS's accreditation program functions under the authority of the Accreditation Council for Continuing Medical Education (ACCME). Representatives from the American Board of Medical Specialties, American Medical Association, Association for Hospital Medical Education, Association of American Medical Colleges, American Hospital Association, Federation of State Medical Boards, and the Council of Medical Specialty Societies comprise the ACCME.

The SMS Council on Continuing Medical Education currently reviews and accredits 55 hospitals, 10 specialty societies, three professional organizations, and three county medical societies in Wisconsin. Information is available from Kristin Bjurstrom Krueger, CMP or Lisa Lawry at the SMS.

Category 1

Category 1 CME designated by an accredited sponsor must meet the following requirements:

- be sponsored by an organization accredited for continuing medical education by one of the state medical associations or by the Accreditation Council for Continuing Medical Education (ACCME), and
- be designated as AMA PRA Category 1 education by that organization.

Category 1 activities can take the form of lectures, seminars, self-assessment programs, mini-residencies, and use of audio-visual or computer-based materials, so long as they are designated as AMA PRA Category 1.

Category 2

All Other CME Activities

In December 1995, Category 2 was defined as all educational activities not designated Category 1, that 1) comply with the AMA definition of CME, 2) comply with AMA ethical opinions on Gifts to Physicians from Industry and on Ethical Issues in CME, and 3) a physician finds to be a worthwhile learning experience related to his/her practice.

Sponsor-Designated AMA PRA Category 2

Accredited sponsors may designate conferences and workshops as AMA PRA Category 2, in accordance with the requirements in Part II. Sponsors are not required to record and maintain attendance information.

Physician-Designated AMA PRA Category 2

Learning experiences that are not designated Category 1 and are not included in the reading requirement can be claimed for Category 2 hours, including:

- consultation with peers and medical experts,
- developing and reviewing quality assessment data,
- use of electronic databases in patient care,
- use of enduring materials,
- small group discussions,
- self-assessment activities,
- journal club activities not designated AMA PRA Category 1,
- teaching health professionals,
- medical writing,
- teleconferences,
- preceptorships, and
- lectures, seminars, and workshops not designated for credit.

The following Wisconsin organizations were accredited by SMS and ACCME for continuing medical education programming as of June 1, 1999.

Accredited Hospitals

All Saints Healthcare, Inc., Racine
Bellin Memorial Hospital, Green Bay
Beloit Memorial Hospital, Beloit
Berlin Memorial Hospital, Berlin
Children's Hospital of Wisconsin, Milwaukee
Columbia Hospital, Milwaukee
Community Memorial Hospital, Menomonee Falls
Fort Atkinson Memorial Hospital, Fort Atkinson
Franciscan Skemp Healthcare, La Crosse
Gundersen Medical Foundation, Ltd and La Crosse Lutheran Hospital, La Crosse
Hartford Memorial Hospital, Hartford

Howard Young Medical Center, Woodruff
Kenosha Hospital and Medical Center, Kenosha
Lakeland Medical Center, Elkhorn
Langlade Memorial Hospital, Antigo
Luther Hospital, Eau Claire
Memorial Hospital of Iowa County, Dodgeville
Mendota Mental Health Institute, Madison
Mercy Health System, Janesville
Mercy Medical Center, Oshkosh
Meriter Hospital, Madison
Reedsburg Memorial Hospital, Reedsburg
Ripon Memorial Hospital, Ripon
Riverside Medical Center, Waupaca
Sacred Heart Hospital, Eau Claire
Sacred Heart-St Mary's Hospital, Inc, Rhinelander
Sauk Prairie Memorial Hospital, Prairie du Sac
Shawano Medical Center, Shawano
Sinai Samaritan Medical Center, Milwaukee
St Agnes Hospital, Fond du Lac
St Clare Hospital, Baraboo
St. Elizabeth Hospital, Appleton
St Francis Hospital, Milwaukee
St Francis Medical Center, La Crosse
St Joseph's Community Hospital, West Bend
St Joseph's Hospital, Chippewa Falls
St Joseph's Hospital, Milwaukee
St Joseph's Hospital & Marshfield Clinic, Marshfield
St Luke's Hospital, Milwaukee
St Mary's Hospital, Green Bay
St Mary's Hospital, Milwaukee
St Mary's Hospital Medical Center, Madison
St Mary's Hospital-Ozaukee, Mequon
St Michael Hospital, Milwaukee
St Michael's Hospital, Stevens Point
St Vincent Hospital, Green Bay
Stoughton Hospital Association, Stoughton
The Monroe Clinic, Monroe
United Health Hospitals, Neenah
Veterans Administration Medical Center, Tomah
Watertown Memorial Hospital, Watertown
Waukesha Memorial Hospital, Waukesha
Wausau Hospital Center, Wausau
Winnebago Mental Health Institute, Winnebago

Accredited Specialties

Milwaukee Gynecological Society
Milwaukee Ophthalmological Society
Wisconsin Academy of Family Physicians
Wisconsin Association for Perinatal Care
Wisconsin Neurological Society
Wisconsin Psychiatric Association
Wisconsin Society of Anesthesiologists
Wisconsin Society of Otolaryngology-Head and Neck Surgery
Wisconsin Society of Pathologists
Wisconsin Urological Society

Accredited County Medical Societies

Dodge County Medical Society
Marinette-Florence County Medical Society
Rock County Medical Society

Other Accredited Organziations

MetaStar
PIC Wisconsin
Wisconsin Association of Medical Directors

ACCME Accredited

Medical College of Wisconsin
UW Center for Health Sciences
Interstate Postgraduate Medical Association
State Medical Society of Wisconsin

Division of Educational Programs and Services

The State Medical Society of Wisconsin Division of Educational Programs and Services offers opportunities that will help maximize physicians' most valuable resources: time, money and knowledge.

Professional Development Programs

Over 6,000 physicians, medical group managers and coding and billing staff attend SMS educational programs throughout the state each year. Covering topics ranging from Medicare and Medicaid to CPT and ICD-9-CM coding, documentation and compliance, SMS professional programs are considered "the source" for practice management education. A course listing can be found in the Professional Development Programs calendar or on the SMS web site at www.wismed.com under Education.

SMS Practice Management Consulting Services

In addition to the professional development programs, SMS offers customized on-site education programs. SMS consultants work side-by-side with office personnel to help ensure the most cost- and time-effective operations possible. These programs include medical chart review for coding and documentation compliance, and assistance with compliance program development.

Medical Chart Review

SMS consultants will identify overcoding, undercoding, unbundling of services, inappropriate and missed coding opportunities. Identification and correction of these problem areas will result in more revenues, minimize future audit and liability risks, allow for better allocation of health care resources, and establish complete and accurate billing and reimbursement records.

Corporate Compliance Program

An SMS consultant works in the physician's office, helping develop a corporate compliance program to prevent and detect non-compliance with Medicare and other billing requirements. SMS consultants will educate designated staff on the important components of a compliance program and help develop policies and procedures for coding and billing processes. In addition, SMS consultants will create a system to monitor coding accuracy, review billing procedures and provide on-going coding education and resources.

On-site Education

Any program found in the Professional Development Programs calendar can be customized for a physician's office and delivered directly to office staff.

SMS experts on legal, governmental, insurance and practice management issues address specific topics related to Wisconsin health care professionals. Each consultant is a Certified Professional Coder (CPC) through the American Academy of Professional Coders (AAPC), and/or an Accredited Record Technician or Registered Record Administrator through the American Health Information Management Association (AHIMA). SMS professional staff offers proven experience physicians can trust.

STRELCHECK & ASSOCIATES, INC.

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- DIAGNOSTIC RADIOLOGY
- MUSCULOSKELETAL RADIOLOGY
- ONCOLOGY
- OTOLARYNGOLOGY
- EMERGENCY MEDICINE
- GENERAL SURGERY
- VASCULAR SURGERY
- PHYSICIAN EXECUTIVE
- PSYCHIATRY
- NEUROLOGY & NEUROSURGERY
- UROLOGY
- ANESTHESIOLOGY/PAIN MANAGEMENT
- PEDIATRICS

The practice settings include flourishing single and multi-specialty groups, respected regional clinics and a staff model HMO. We may have the opportunity that will help you achieve your career goals in a community that fits your lifestyle.

Call: 800-243-4353

SMS Insurance Services: One focus, one program, one company

Every year physicians are solicited by dozens of insurance and investment companies. While most of these firms are knowledgeable and professional, only one exclusively serves Wisconsin's medical community – SMS Insurance Services, Inc (SMSISI). A subsidiary of SMS Holding Corporation, SMSISI serves nearly 7,500 clients holding over 9,000 policies.

Specialization enables SMSISI to understand physicians' insurance and investment needs better than anyone else. The company takes a comprehensive approach to insurance and financial planning, and in doing so, draws upon the resources of its four divisions:

- **Professional Liability Division**—provides a wide range of medical professional liability protection. As one of Wisconsin's leading providers, SMS Insurance Services develops coverage that is custom-tailored for physicians, hospitals, clinics and their staffs.
- **Personal Insurance Division**—addresses Strategic Insurance Planning issues such as income continuation, estate planning, retirement income, education expenses and protection of personal property, including auto and homeowners.
- **Business Insurance Division**—provides business insurance products including general liability, directors and officers, worker's compensation, building and contents, commercial auto, business continuation, funding buy-sell agreement, key employee, benefits for highly-compensated employees, and deferred compensation programs.
- **Employee Benefits Division**—designs and implements group benefits programs necessary to help recruit and retain top-quality employees. Coverages include group life, medical and dental coverage, long- and short-term disability, self-funded benefit plans, long term care, and flexible spending accounts.

Focusing our resources enables us to do a better job for Wisconsin's medical community. This focus has earned SMS Insurance Services the business of nearly 70% of physicians and almost 25% of the hospitals in Wisconsin.

For more information, contact Karl Oldenburg at SMS Insurance Services.

WISPAC, PFBG offer opportunities to be heard at the Capitol

Increased political activism is essential for ensuring that physicians's voices are heard in the legislature—on issues like health care reform and patient rights. The Wisconsin Physicians Political Action Committee (WISPAC) and Physicians for Better Government (PFBG) help steer the future of Wisconsin medicine in the right direction.

WISPAC was created as the State Medical Society's bipartisan political action committee to meet the demands of physicians concerned with the future of health care in Wisconsin. Its members understand that becoming a part of the political process sends a strong message to the legislature–that physicians are informed and support candidates who support quality health care.

One need only look to the most recent legislative session to see how essential WISPAC and PFBG are to quality public health policy in Wisconsin. SMS lobbyists have been highly successful on such issues as patient consent, tobacco money for tobacco prevention and tort reform. Much of this success can be attributed to WISPAC supporting and electing pro-medicine candidates. Without continued physician involvement, these recent successes could become distant memories.

Therefore, it is imperative for past WISPAC members to renew their membership and for every prospective member to join. The ability to assist candidates who support medicine is severely limited by political apathy.

WISPAC is affiliated with the **American Medical Political Action Committee** (AMPAC), the American Medical Association's political action committee. AMPAC has members nationwide who support candidates for the US Congress. WISPAC has an extremely good record for getting AMPAC funds back to House and Senate candidates in Wisconsin.

PFBG is a direct-givers program, or political conduit. It allows members to put their money into their own individual "political savings" account. Through PFBG, members give money in their name to candidates they support. The member receives personal recognition in addition to sending a unified message to our elected officials that physicians are politically active and aware.

No other health-care organization can offer more information about current elected officials and political candidates. WISPAC and PFBG keep members informed about legislation and candidates that will affect practices and patients' rights.

WISPAC provides several suggested contribution levels: $500 for Chairman's Club *($350 for PFBG, $100 WISPAC, $50 AMPAC)*; $200 for Sustaining Membership *($100 PFBG, $50 WISPAC, $50 AMPAC)*; $150 for Sponsoring Membership *($50 PFBG, $50 WISPAC, $50 AMPAC.* Members may indicate that contributions be allocated to their own specification among the three accounts. All donations to WISPAC, PFBG and AMPAC are not deductible as charitable contributions for federal income tax purposes.

WISPAC Officers

Chairman: Kenneth M. Viste, Jr., MD
Vice-Chairman: Carl Eisenberg, MD
Secretary-Treasurer: Sandra Osborn, MD
Assistant Secretary-Treasurer: Robert McDonald, MD
Executive Director: Michael Kirby, CAE

Congressional District #1
J. Christopher Noonan, MD; Steven Azuma, MD
Congressional District #2
Robert McDonald, MD; Sandra Osborn, MD
Congressional District #3
Mark Andrew, MD; Daniel Sherry, MD
Congressional District #4
Randi Hart, MD; Thomas Slota, MD
Congressional District #5
Gregory Gnadt, MD; Charles Rainey, MD
Congressional District #6
Timothy Flaherty, MD; Kenneth Viste, Jr., MD
Congressional District #7
Richard Ulmer, MD; Robert Phillips, MD
Congressional District #8
Barry Seidel, MD; Robert McQueeney, MD
Congressional District #9
Sridhar Vasudevan, MD; Michael Reineck, MD
Members-at-Large
Steven Bergin, MD; Carl Eisenberg, MD; Bruce Jacobson, MD; James Mattson, MD; John Riesch, MD; James Siepmann, MD; Jonathan Thomas, MD; Mary Weber, Alliance member; Tosha Wetterneck, MD; Paul Wertsch, MD

For more information contact Dan Klabunde, SMS Political Membership Coordinator.

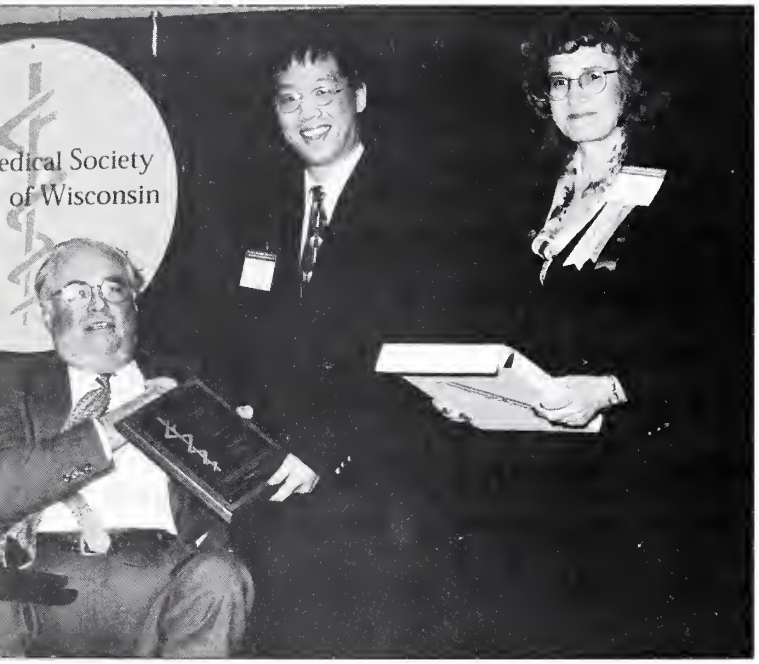
SMS Foundation

The SMS Foundation was chartered by the SMS in 1955 as a nonprofit, nonstock corporation to enable physicians and other friends of the profession to support, through gifts and grants, projects vitally affecting scientific medicine and public health. The Foundation's scope of interest has grown because of estate gifts received; therefore, a number of worthy programs affecting medical education and health care needs in Wisconsin can be accomplished.

Achievements

Research, Scientific and Public Health. Over the years, several research and scientific funds have been created from memorial contributions. The funds' income provides grants each year for psychiatry, surgery, family practice, pathology, and biomedical research.

Occupational Health Guide. The Foundation produces "Your Body at Work," an occupational health guide that serves as a practical reference for medical and nursing personnel in the commercial and industrial setting.



During the SMS Annual Meeting, Kenneth M. Viste, Jr., MD, and Julie A. Hein, CFRE, present the Houghton Award to Charles Hu, Medical College of Wisconsin. The award is presented annually to one outstanding senior from each medical school. Doctor Viste is president of the SMS Foundation; Ms. Hein is executive director.

Public Health Care Issues. A number of grants are allocated each year for public health care initiatives. Tobacco, domestic abuse, child safety, mental health, and AIDS have been some of the primary focuses in recent years.

Center for Medical Practice Research and Education. A major fund-raising activity for the Foundation in 1998 involved the launch of the newly created SMS Center for Medical Practice Research and Education. Spearheaded by co-chairs Sandra Osborn, MD, and John Petersen, MD, along with Earl Thayer, the Center received a $250,000 contribution from the family of Dr. Henry A. and Irene S. Anderson. The Center is named for them and interest income from the endowment fund will be used towards the Medical Outcomes Research Project, particularly in the area of asthma.

A donor recognition program was also implemented for a west wing remodeling project completed to house the Center. Over $88,000 was raised from 90 contributions. A brick garden walkway was established for those donors contributing $1,000 or more. Named giving opportunities were also created thanks to contributions from Dr. and Mrs. John Riesch (artwork), Dr. Osborn (bench), Betty Bamforth, MD (native plantings), and Dr. Gilbert and Ann Stannard, (credenza). In addition, four board room chairs were named by Bank One, Pauline Jackson, MD, Richard Roberts, MD, and Roger von Heimburg, MD.

Medical Outcomes Research Project. Co-chaired by Dr. Osborn and Dr. Petersen, a fund raising work group created a plan to solicit physicians, businesses and foundations to make gifts to the Outcomes Project. Since December, 1998, 42 physicians and other interested individuals made over $19,000 in gifts to the Project, matching out the PIC Challenge Grant in 1998. In addition, eight county medical societies made gifts: Brown, Dane, Dodge, Fond du Lac, Milwaukee, Pierce/St. Croix, Racine, and Walworth.

Highlighted by a major leadership gift of $25,000 from Physicians Insurance Company, corporate contributions totaled over $111,000.

Landis Lecture. Mary Landis, widow of Charles Landis, MD, from Elm Grove, Wisconsin, established a memorial lecture fund with a leadership contribution of $200,000. The lecture will serve as a lasting tribute to her husband who dedicated

his life to professional and public education programs relating to psychiatry and mental health. The first lecture was held October 1, 1998 in Milwaukee.

Student loans, grants and scholarships. One of the Foundation's most important activities is the student loan program. Established in 1955, the Foundation's general student loan fund is designed to assist needy, deserving students preparing for careers in medicine. The long-term, low-interest loans are interest-free until after the student graduates. Medical students must be attending the UW Medical School or the Medical College of Wisconsin.

Through fiscal year ending June, 1999, the Foundation granted 51 loans to medical and allied health students for a total of $255,000. Repayments during fiscal year 1997-98 totaled $155,101. Since the loan fund was established, 1786 students have received $2,900,530 in long-term, low-interest loans.

Although the Foundation's primary emphasis is in loans, some scholarships and grants are made to fulfill the wishes of donors and the needs of certain potential recipients. These loan and scholarship funds are administered by the Foundation according to the wishes of the individual or organization establishing and supporting the fund.

Applications may be procured from the SMS Foundation, 330 E Lakeside St, Madison, WI, 53715; or the medical college's financial aids offices. Loan amounts are $5,000 for sophomores, juniors and seniors.

Wisconsin Association of Senior Physicians. The Foundation coordinates an annual meeting for this group, which was formed in the fall of 1980 to plan and implement ways for retired physicians to continue to be a part of the advances in medicine. All physicians aged 60 and over are invited to join the group; a $25 membership fee is requested.

Foundation Grant Allocation. During 1998, the Foundation contributed to a number of worthy projects through unrestricted and restricted contributions:

- Accident Scene Management to sponsor *A Crash Course for Motorcyclists*
- Beaumont Lecture of the Wisconsin Surgical Society – Honorarium for a speaker
- Doctors Ought to Care to upgrade educational materials
- Indian Waters Girl Scout Council to sponsor participants for Challenges & Choices event
- NAMI Wisconsin to fund a Wisconsin's Family and Consumer Resource Guide
- Medical Students Volunteer Corps
- Safe and Fast Extrication to fund research
- Tobacco-Free Wisconsin Coalition to underwrite keynote speaker
- Volunteer Braillists & Tapists, Inc.
- Wisconsin Coalition Against Domestic Violence
- Wisconsin Research Network to partially fund a conference in October
- Wisconsin Rural Partners Health Task Force to sponsor workshops
- Wisconsin Safety Patrols, Inc, to sponsor a delegate to Washington, D.C.

Foundation Facts

Management. The Foundation's governing power is vested in a board of trustees composed of SMS directors and officers, other medical and nonmedical members elected by the board of directors, and one representative elected by each component medical society. The board of directors of the corporate trustees consists of 18 members including the president, vice president, secretary and treasurer of SMSF, 12 members, seven of whom may be nonmedical trustees, each elected for staggered three year terms.

The Foundation is registered with the Secretary of State as a charitable organization for purposes of contributions and fund-raising under [***]440.41(2) of the Wisconsin Statutes.

The SMS Foundation is a 501(c)(3) nonprofit corporation, and contributions are tax deductible under both state and federal tax laws.

SMS Foundation Officers

President: Kenneth M. Viste Jr., MD, Oshkosh
Vice President: Sandra L. Osborn, MD, Verona
Treasurer: Rockne G. Flowers, Stoughton
Secretary: John E. Patchett, JD,* Madison

Directors

Betty J. Bamforth, MD, Madison
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Lucille B. Glicklich Rosenberg, MD, Milwaukee
Ralph Hawley, Oregon
Kevin Hayden, Madison
Julie A. Hein,* Madison
David M. Kemp,* Madison
Jack M. Lockhart, MD,* La Crosse
Robert B. L. Murphy, Madison
Stephen B. Webster, MD, La Crosse
**ex-officio*
Currently, two medical and two nonmedical Board seats are open

Executive Director

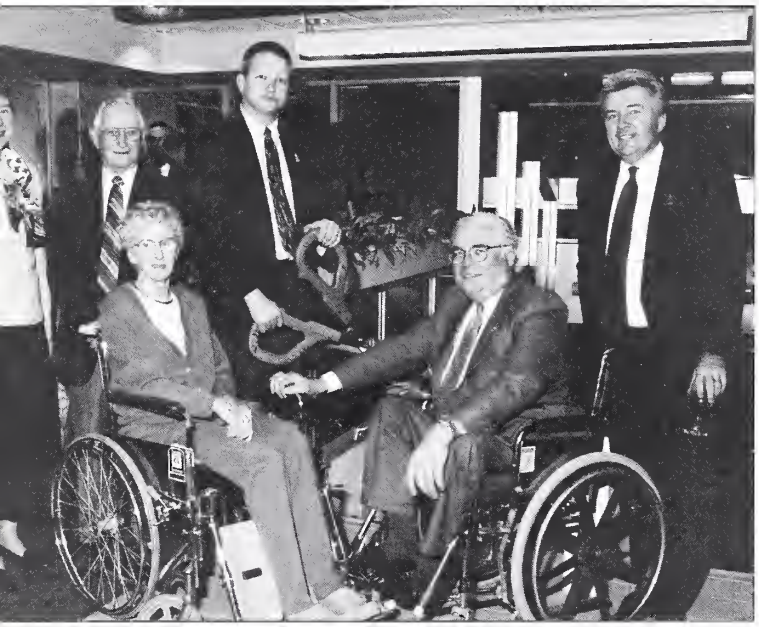
Julie A. Hein, Madison

SMS Foundation guide to gifts

Gifts to the Foundation may take a number of forms: cash, bequests, trusts, life insurance, real estate, stock or other securities—some physicians make the Foundation a beneficiary of their wills. Such gifts may be designated as unrestricted or for specific immediate use at the discretion of the foundation trustees. They may also be restricted or earmarked for specific purposes of interest to the donor.

Cash gifts. Most contributions received by the Foundation are cash gifts. The Foundation currently asks for a voluntary contribution of $100 from SMS members through the dues statement and other direct mail solicitations. In 1998, $25,000 was raised through 219 such contributions.

Planned gifts. The simplest planned gift is through a bequest. Ideally, the donor notifies the beneficiary or charitable organization of their intentions so the organization can plan accordingly for future programs. The donor may choose simple wording to benefit the SMS Foundation: "I give to the SMS Foundation of the State Medical Society of Wisconsin, a nonprofit, nonstock Wisconsin Corporation, the sum of $ (or specifically describe the real or personal property)."



Mrs. Irene S. Anderson is among those taking part in a ribbon cutting ceremony for the Henry A. and Irene S. Anderson Center for Medical Practice Research and Education. Pictured at the dedication, which took part during the SMS Annual Meeting, are Sandra Osborn, MD, Vice President, SMS Foundation; Earl Thayer, former Secretary of the SMS; Mrs. Anderson; Mark Andrew, MD, Chair, SMS Board of Directors; Kenneth M. Viste, Jr., MD, President, SMS Foundation, and John Patchett, JD, SMS Executive Vice President.

Stock or other securities. Current gifts may take the form of stock or other securities that have appreciated in value. Such gifts permit the donor to realize substantial tax advantages.

Physicians Insurance Company (PIC) of Wisconsin stock contribution program. Physicians and clinics who chose not to tender their shares of PIC Wisconsin stock during the company's Dutch auction were invited to contribute shares to the Foundation. Eighty-three shares were contributed in 1998. The SMS Foundation Board of Directors has deemed these shares as future holdings for the Foundation's General Endowment Fund.

Pooled life income fund. Life income gifts are gifts from which you and a designated beneficiary receive lifetime income. After the lifetimes of the "income beneficiaries," the SMS Foundation will receive the principal to reinvest or use for whatever purposes as deemed appropriate by the Board of Directors.

Pooled Life Income Funds are ideal for highly appreciated stock contributions. They provide immediate savings through an income tax deduction in the year of the gift, they could mean an increase in current income, and they eliminate a capital gains tax.

Endowment Plus. For annual gifts as low as $200, life insurance offers an easy means to make a substantial gift and provide tax advantages. Endowment Plus is a fully tax deductible irrevocable insurance program underwritten by Transamerica Assurance Company. There are no personal or medical questions to answer and no physical exam is required.

Real estate. Any standard form of warranty deed or acceptable quit claim deed may be used to deliver real estate to the Foundation.

For further information regarding the SMS Foundation, please contact Julie A. Hein, SMS Foundation, PO Box 1109, Madison, WI 53701; 608-257-6781 (Madison area) or toll-free in Wisconsin 1-800-362-9080.

The Center

The Henry A. and Irene S. Anderson Center for Medical Practice Research and Education offers a noncompetitive and secure home for practice improvement research and discourse on best practices without regard to health system affiliation.

Vision

The Henry A. and Irene S. Anderson Center for Medical Practice Research and Education (The Center) will become the source for quality improvement research and benchmarking information in Wisconsin. It is dedicated to the evaluation of all types of treatment modalities to determine best medical practices, and to involve physicians directly in this inquiry. Embraced in the concept is outcomes management—providing routine measurement of patient functional health status and well-being.

In addition to practice research, the Center will be a leader in offering continuing medical education effective in changing physician practices through small group feedback of practice data and academic detailing.

The Center's goals for conducting outcomes-based research and education will also further enhance the profession of medicine, and help physicians determine its path.

The Center for Medical Practice Research and Education offers a means of ensuring that the future of health care delivery is positive, a future of growth and success for Wisconsin physicians and their patients.

For more information about the Medical Outcomes Research Project or the Center for Medical Practice Research and Education, contact Cindy Helstad, PhD, RN.

Medical Outcomes Research Project

The Medical Outcomes Research Project (MORP), started in 1995, helps physicians answer the demand for accountability from health care systems, from patients, from payers and purchasers, and from society. The Outcomes Project helps improve quality by developing a Continuous Quality Improvement (CQI) model that uses valid methodology, motivates appropriate practice changes and targets the entire health care delivery system.

Current studies include:

- **Adult Asthma:** This is the first MORP Study to ready the analysis stage. Study results are available in the May/June 1999 *WMJ*. The study group is developing a toolkit of resources to help medical groups improve key process and outcome measures consistent with national practice guidelines. Bruce Berry, MD, Milwaukee, chairs the study group.
- **Pediatric Asthma:** This study group is completing their pilot study data collection protocol. Clinics from La Crosse, Madison, Wausau and Southeastern Wisconsin will participate in the pilot scheduled to begin this fall. John Meurer, MD, Milwaukee, chairs the study group.
- **Low Back Pain** (LBP): The Low Back Pain study group is having monthly teleconferences chaired by James Stoll, MD, Milwaukee. The study is measuring patient outcomes associated with treatment variation that cannot be explained by patient differences. Fifteen sites are participating in the LBP pilot study.
- **Diabetes:** This study, which is in the planning stages, is funded by the state of Wisconsin Department of Health and Family Services. The study's purpose is to measure the effectiveness of adherence to the diabetes guidelines developed by the Wisconsin Diabetes Advisory Group. SMS staff is in the process of identifying study group members. The current idea is to do a community-based rather than a state-wide study. Brown, Dane and Marathon counties are under consideration as study sites. Peter Rumm, MD, is the Principal Investigator of this study.

Wisconsin Antibiotic Resistance Network

This five-year state-wide study is funded by the Centers for Disease Control and Prevention to reduce the prevalence of antibiotic-resistant *S. pneumoniae* isolates in Wisconsin, and to reduce outpatient antibiotic use for upper respiratory infections. The Marshfield Medical Research Foundation, the State Medical Society of Wisconsin, and the Wisconsin Division of Public Health are collaborators in this effort. Project activities include public education, clinician education, surveillance and evaluation. Edward Belongia, MD, Marshfield, is the Principal Investigator.

SMS offers array of publications

A number of brochures are available from the SMS. Most are intended as useful physician-education tools on socioeconomic and legislative topics; others serve as patient-education materials on a variety of medical issues. Some are available free of charge, while others require a nominal fee. Contact the SMS staff person listed for more information and/or to order publications at (800) 362-9080, or in Madison, (608) 257-6781.

Physician and Staff Education Tools

Anatomy and Physiology - $29 + tax. This manual reviews the basics of body structure and function including both normal and pathological conditions. It provides a basic understanding of problems commonly encountered in health care settings and, combined with medical terminology, provides the foundation needed for accurate reimbursement coding and medical chart entries. *Contact Elaine Stern, SMS Professional Development Programs.*

Child Safe Information - free. Brochures, gun safety checklists, matching grant forms, bike helmet and firearm trigger lock information. *Contact Eric Ostermann, Lakeside Association Services, or Lynn Sherman, SMS Public Affairs.*

Closing a Practice - free. Article from *WMJ*,1997. *Contact Sonia Porter, SMS Office of General Counsel.*

Considerations for Selling a Practice - free to SMS members. An AMA publication. Also available through e-mail. *Contact Sonia Porter, SMS Office of General Counsel.*

Domestic Violence - free posters, model protocols, training videos, elder abuse guidelines, etc. are available from the SMS. *Contact Lynn Sherman, SMS Public Affairs.*

Getting Acquainted with Managed Care - $29 + tax. This manual is designed for those at the entry level of the managed care arena. It will provide you with definitions of commonly used terms, contracting basics, Medicare and Medicaid movement toward a managed care environment, and much more. *Contact Elaine Stern, SMS Professional Development Programs.*

Health Insurance 101 - $29 + tax. This handbook is designed to introduce the basics of the health insurance industry. Emphasis is placed on basic health insurance terminology, benefit interpretation, types of contracts and resolving claim problems. *Contact Elaine Stern, SMS Professional Development Programs.*

If You Have a Complaint about Medical Care - free. This brochure explains the SMS's grievance and peer review system. *Contact Sonia Porter, SMS Office of General Counsel.*

Living Will and Durable Power of Attorney for Health Care Forms State of Wisconsin - free. *Contact Sonia Porter, SMS Office of General Counsel.*

Medicaid Basics - $29 + tax. This manual is designed to provide basic information applicable to any provider specialty billing Wisconsin Medicaid. It contains an overview of the Medicaid Program, sample Medicaid ID cards and their benefit limitations, procedures for completing the HCFA 1500 for Medicaid reimbursement, Medicare crossover claim filing procedures and follow-up procedures. *Contact Elaine Stern, SMS Professional Development Programs.*

Medical Professional Liability Insurance: Claims Made or Occurrence? - free. This brochure explains for physicians how the policies work, how premiums are established, how coverage is terminated, the limits of liability and deciding between the types of coverage. The brochure was produced by PIC Wisconsin. *Contact Alice Ballweg, SMS Insurance Services, Inc.*

Medical Record Retention Information - free. *Contact Sonia Porter, SMS Office of General Counsel.*

Medical Records and the Law - $29 + tax. This manual is designed for medical group managers and office personnel and covers all aspects of medical records management. *Contact Elaine Stern, SMS Professional Development Programs.*

Medical Record Statutes - free. *Contact Sonia Porter, SMS Office of General Counsel.*

Medical Terminology - $29 + tax. This manual is designed to introduce basic medical terminology. There is an emphasis on terms commonly used for insurance claims and coding. *Contact Elaine Stern, SMS Professional Development Programs.*

Medicare Part B Basics - $29 + tax. This basic manual is designed for those beginning to bill and file claims to the Medicare Part B program. It discusses the beneficiary enrollment procedure, step-by-step instructions on filling out the HCFA 1500 claim form, the appeals process, Medicare Reimbursement and more. *Contact Elaine Stern, SMS Professional Development Programs.*

Medicare Part B Database - $49 + tax. A paper copy of the Medicare Part B Fee Schedule Database (MFSDB) is available for purchase through the SMS. The listing includes conversion factor information, relative value units (RVUs), surgery indicators (global, multiple, bilateral, co-surgery, and team), and payable surgical tray information. *Contact Elaine Stern, SMS Professional Development Programs.*

Medicare Part B Physician Reference Manual - $49 + tax - diskette version available for $29 + tax. This guidebook is designed to help the physician's billing staff stay on top of Medicare's policy and procedures. *Contact Elaine Stern, SMS Professional Development Programs.*

Occupational Health Guide - $99 + tax. A completely updated edition will be available by January 1, 2000. This revised edition contains information for medical and nursing personnel in the commercial and industrial setting. Entitled "Your Body At Work" the guide includes information on medical directives, planning for medical emergency care, OSHA Bloodborne Pathogen Standards and universal precautions for transmission of HIV infection and tuberculosis. Special chapters include "Americans with Disabilities Act," latex allergy, special considerations for women in the workplace and many others. *Contact Lynn Sherman at the SMS.*

Office and Reception Skills - $29 + tax. This handbook is designed for front office personnel. It gives instruction on scheduling appointments, telephone etiquette, reception skills and interaction with patients. *Contact Elaine Stern, SMS Professional Development Programs.*

PartnerCare - free. A poster and brochure aimed at educating elderly low-income patients about this important SMS voluntary Medicare assignment program. *Contact Elaine Stern, SMS Professional Development Programs.*

A Physician's Guide to Wisconsin Health Law, Vol. IV – one copy free to members. Additional copies may be purchased at a reduced rate. This handbook deals with the more important legal and socioeconomic issues affecting the practice of medicine in Wisconsin. The information in this book will help you avoid pitfalls, answer your patients' questions, ask the right questions when you need counsel, and become a more involved and effective voice for the profession. Published in 1997. *Contact Sonia Porter, SMS Office of General Counsel.*

Physician Support Program - free. A packet for those facing malpractice mediation. *Contact Erin Warner, SMS Public Affairs.*

State Medical Society of Wisconsin Policy

Compendium: 1999-2000 Edition - free. The compendium provides all SMS current policies. It is updated yearly and is available to all SMS members. *Contact Lynn Sherman, SMS Public Affairs.*

RBRVS Schedule -$21.50. The Medicare Part B Final Rule Federal Register. *Contact Elaine Stern, SMS Professional Development Programs.*

Statewide Physician Health Program - free. This brochure offers information on the SMS's Statewide Physician Health Program. The program provides compassionate assistance to Wisconsin physicians suffering from any condition which may progress to impairment. A brief discussion of education, identification, assessment and intervention is provided in this 1997 publication. *Contact Sonia Porter, SMS Office of General Counsel.*

Successful Strategies for Patient Satisfaction - $29 + tax. This manual is designed to help physicians and staff communicate effectively with patients, co-workers, and others. *Contact Elaine Stern, SMS Professional Development Programs.*

Worker's Compensation - free. The SMS makes available to physicians several brochures and forms designed to ease the burden of worker's compensation cases. "The Guide for Wisconsin Doctors: Using the WC-16B for Worker's Compensation" and the booklet "How to Evaluate Permanent Disability," updated in October, 1997, are available. The "Return to Work/Physical Capabilities" form, produced by the SMS Com-

mission on Occupational and Environmental Health is available. This revised form was developed to be comprehensive and user friendly for employers, physicians and patients. *Contact Lynn Sherman, SMS Public Affairs*

Badger Care - free brochures and poster detailing the state of W isconsin's new health insurance program for the working poor. *Contact Erin Warner, SMS Public Affairs.*

Coding Publications

Introduction to CPT Coding - $29 + tax. This basic manual is designed for beginning coders. It stresses the rules and guidelines of the CPT book. There are beginning level exercises stressing the fundamentals. *Contact Elaine Stern, SMS Professional Development Programs.*

Introduction to ICD-9 CM Coding - $29 + tax. This basic manual is designed for beginning coders. It stresses the importance of the ICD-9-CM system and introduces the guidelines necessary to use the system correctly. *Contact Elaine Stern, SMS Professional Development Programs.*

CPT Coding: The Next Step - $29 + tax. This manual is designed for coders with a minimum of six months coding experience. It reviews the fundamentals and challenges the coder with a series of intermediate level problem-solving exercises to expand coding skills. *Contact Elaine Stern, SMS Professional Development Programs.*

ICD-9 CM Coding: The Next Step - $29 + tax. This manual is designed for coders with a minimum of six months coding experience. It reviews the basic fundamentals of the ICD-9-CM coding system and focuses on the ICD-9-CM rules through a series of challenging exercises. *Contact Elaine Stern, SMS Professional Development Programs.*

CPT & ICD-9-CM Coding: Annual Update - $29 + tax. This manual is intended for experienced coders and includes an intense series of advanced coding exercises designed to fine-tune coding skills. It will also reinforce coding guidelines and sharpen ICD-9-CM coding skills to provide the highest quality diagnostic information needed to enhance reimbursement. *Contact Elaine Stern, SMS Professional Development Programs.*

Evaluation and Management Coding - $49 + tax. This manual is designed to help coders understand the CPT Evaluation and Management (E/M) codes. The manual contains exercises to stress the necessary information needed to use the E/M codes correctly. *Contact Elaine Stern, SMS Professional Development Programs.*

In addition to the coding manuals listed above, the SMS Division of Education Programs and Services offers a variety of specialty-specific manuals. *For more information, please contact Elaine Stern, SMS Professional Development Programs.*

Patient Brochures

Poster on Family Violence, "Break the Silence, Begin the Healing," available from the SMS Alliance. *Contact Kathy Mohelnitzky, Lakeside Association Services.*

Reading Posters - free. Based on the book *Read to Your Bunny* by Rosemary Wells, this 18" x 24" poster states, "Listen to your Doctor, Read to Your Bunny Twenty Minutes Every Day." Produced by the Wisconsin Library Association in conjunction with Sue Ann and Governor Thompson's 1998 First Books Project. *Contact Lynn Sherman, SMS Public Affairs or the Wisconsin Library Association.*

Healthy Start Brochures/Posters - free. Healthy Start posters for medical offices and patient-oriented brochures in English, Spanish and Hmong are available through the SMS. Healthy Start is the program that provides comprehensive Medicaid health insurance coverage for pregnant women and infants under more generous income criteria than Aid to Families With Dependent Children (AFDC). *For more information on the program and brochures and posters contact Merry Earll, SMS Public Affairs.*

UCR, A Patient's Guide: How Much Will My Health Insurance Pay? - 10 cents per copy. This brochure explains what "usual, customary and reasonable" means, how misunderstandings can be avoided and how problems can be resolved when they occur. This brochure is suitable for enclosure in office statements or for placement in patient reception areas. Revised in 1998. *Contact Merry Earll, SMS Public Affairs.*

Services

Consulting Services – SMS staff is available for on-site consulting on issues ranging from chart review, corporate compliance program development, front and back office assessment, and more. *Contact Karen Garrett, Education, Programs and Services.*

Hospital Medical Staff Bylaw Review. *Contact Melanie Cohen or Ruth Heitz, SMS Office of General Counsel.*

Managed Care and Physician Employment Contract Review. *Contact Melanie Cohen or Ruth Heitz, SMS Office of General Counsel.*

Mediation - Brochure/service free to patients who have quality of care complaints. *Contact Sonia Porter, SMS Office of General Counsel.*

On-Site Customized Education – SMS staff can provide physicians and their staff with practice management education designed to meet specific needs. Services include on-site customized education such as chart review and analysis of CPT and ICD-9 CM coding and documentation, assisting in development and implementation of a corporate compliance program, and a front and back office assessment concentrating on patient and work flow issues. *Contact Karen Garrett, Education, Programs and Services.*

Peer Review Service provided, by contract, to physicians, hospitals or clinics for objective medical peer review for quality of care. *Contact Sonia Porter, SMS Office of General Counsel.*

Statewide Physician Health Program - free. Intervention for alcohol, other drugs, senility, etc. *Contact Sonia Porter, SMS Office of General Counsel.*

HCFA Product List

1999 marks our 21st year selling **HCFA 1500 Insurance Claims forms.**

Our forms:

- are quality products sold at competitive prices;
- are stocked in-house for timely order processing, usually within 24 hours;
- meet requirements for Medicare and Medical Assistance filings;
- are OCR Scannable;
- are available in a one- or two-part continuous form for use with dot matrix printers or single sheet laser stock for use with laser printers.

Additional Products Available

- 485-486-487 Addendum's to HCFA 1500 forms
- UB92 forms available in one-, two-, three-, and four-part continuous and cut sheet forms for laser printers
- Dental forms (for direct shipment)
- Right hand window envelopes (increments of 500)

HCFA ordering information

Please note:

- Orders over 10 cartons may call for special pricing.
- Out-of-state orders may be subject to additional shipping charges.
- All prices plus shipping.
- Other versions can be special ordered. Call for pricing and delivery information.
- We will ship and invoice quantities of 250 or more to accounts with approved credit.
- A restock charge will apply to forms returned.

To order, call 1-800-545-0632 or fax 608-283-5401. We will send a complimentary form and assist you with questions or concerns. E-mail to BILLG@smswi.org or send an order to **Bill Guerten, 330 East Lakeside St., PO Box 1109, Madison, WI 53701-1109.**

Riesch: Working together essential for optimum patient care

John D. Riesch, MD, addresses the House of Delegates during the SMS Annual Meeting

Serving as president of the SMS has reminded me of the importance of building good relationships. If we do that, both in our personal and professional lives, we can accomplish almost anything. Today, it's more crucial than ever for the SMS to form partnerships with other organizations. And, especially with our fellow physician colleagues who are yet to become members.

Sometimes forming a good relationship is as easy as finding a common interest. Here's an example. Last fall, one of my duties as president was to lead a news conference at West Side Academy Middle School in Milwaukee. Little did I know that my passion for *basketball* would play into an event aimed at convincing kids not to smoke.

Shortly before I approached the podium, I chatted with the principal of the school hosting the event. Now this tall, athletic-looking principal seemed familiar to me. So I just asked: "Did you play high school basketball?" His face lit up, amazed that I remembered him after at least 20 years. Ah...I did remember him and the school he played for. He was a standout athlete—and I told him so. Despite the fact that we had never met before—we had this connection. We had a common interest.

And that's really what relationships are all about, folks. Finding a common interest, and then joining forces to achieve a common goal. In medicine, it may sometimes seem as though physicians have competing interests. But finding the common interest we physicians have is a no-brainer. It's our *patients*, of course. Our duty is to protect patients from disease—and from bad public policy.

Will we physicians always agree? Of course, not. But that shouldn't stop us from finding common ground. Physicians must *stand together*. For our patients—and for the future of our profession.

Tap your relationships and common interests with non-members as an opportunity to encourage them to join us. Tell them why you believe in your professional society. Heck, I actually *enjoy* writing out my dues check for SMS because I know the tremendous value I receive in return! There is nothing in the world more infectious than the enthusiasm of a friend or colleague you respect. So go to it.

Will it be easy to start this conversation? In many cases, no. Few worthwhile endeavors in life are easy. So achieving our goal of 90 percent membership definitely will be no walk in the park. It can be done, though, if we work individually, and as a medical society to try new approaches to invigorate membership.

"It is with great respect for our patients and the practice of medicine that we must work together to ensure that future generations of patients and physicians have a health care system that is dedicated to their best interests."

We have to be bold. That means making real changes. Taking risks. Testing new ways of attracting members. We must seriously consider the proposals on the Floor of the House. And although it may be difficult, we cannot make decisions based on emotion, but rather on the facts. Our biggest mistake would be to do nothing, and assume everything's fine. Well, everything is *not* fine. It's time to act. The profession of medicine must unite in Wisconsin for many reasons. But here are just a few.

When state government creates a law that requires outpatient data to be sent to the state, we must work to at least give patients the right of consent before that is done. Our oath demands that we cherish patient privacy.

When third-party payers are more concerned about saving money than saving lives, we have to step in and say, "Enough." We're the ones who went to medical school and we're the ones trained to make the best treatment decisions.

When tax-free income goes to construct high-rise buildings instead of to serve low-income patients, we as a medical society must stand up to support a level playing field for all hospitals, clinics and physicians.

We can achieve these goals and others, if we summon the courage necessary to make them happen. If we speak with one, clear voice as physicians and then join other groups and individuals in our common goal to best-serve patients, we cannot be ignored.

One of my own patients joined our cause to pass the Patients' Bill of Rights by telling her own health care story to the public.

Barbara Krzoska spoke out in favor of federal Patient Protection Act legislation. She told a statewide television audience how her insurance company's stonewalling delayed her essential surgery. Patients like Barbara rely on us—their physicians—to help them make the best medical decisions.

We can better enlist individual patient support and build public trust if we physicians improve our efforts to serve our communities. Patients, often through the media, rely on us to provide information that can prevent disease and premature death. With that goal in mind, SMS helped inform the public about prostate cancer screening during my tenure as president. I spoke with concerned citizens during a statewide radio program, and helped get the word out about early detection. I was happy to use my own personal experience as an example of how early detection helped me. We, as physicians, have an obligation to speak out for the prevention of disease, too.

We must continue to speak out, because we have the power to influence the practice of medicine for generations of patients and young doctors to come.

No, taking a stand isn't easy. Like I said a minute ago, it takes courage. Courage like that described in a best-seller written by a former classmate of mine, the great historian Stephen Ambrose. In his book, *Undaunted Courage*, he writes of Meriwether Lewis and how Lewis led one of the most momentous expeditions in our

"If we speak with one, clear voice as physicians and then join other groups and individuals in our common goal to best-serve patients, we cannot be ignored."

nation's history. Lewis blazed a trail through the uncharted land of the Great American Northwest, and discovered its richness and beauty for generations to come. Ambrose describes the explorer's fantastic discoveries this way:

"(Lewis) had crossed mountains that were greater than had ever before been seen by any American, save the handful who had visited the Alps. He had seen falls and cataracts and raging rivers, thunderstorms all but beyond belief, trees of a size never before conceived of, Indian tribes uncorrupted by contact with white men, canyons and cliffs and other scenes of visionary enchantment. A brave new world."

We too, with the zeal of explorers, can rediscover the practice of medicine for the benefit of all Wisconsin residents. We know the commitment to this goal is worthwhile, every time we heal a wound, offer an encouraging word to nervous family members or perform the ultimate service—to save a life. We are proud to offer such help and grateful for the opportunity to do so. It is with great respect for our patients and the practice of medicine that we must work *together* to ensure that future generations of patients and physicians have a health care system that is dedicated to their best interests.

John D. Riesch, MD, congratulates Philip J. Dougherty, MD, as the recipient of the 1999 Presidential Citation Award. The award was presented to Dr. Dougherty during the presidential inaugural ceremony.

With these principles in mind, I have done my best to represent the State Medical Society. But I could not have performed my duties as president and as a physician, without the dedicated support of my wife, Virginia. Thank you.

Nor could I have done so without my staff—Cathy Gagliano, Sue Goebel, Mary Raduenz and especially, Kat Minelli. Kat managed to field all those calls from SMS headquarters, so I could be in the right places at the right times. Thanks to my wonderful staff, for all of your hard work over the past year.

My appreciation also extends to the committed staff at SMS headquarters here in Madison. Under the leadership and vision of Executive Vice President John Patchett, they are moving the State Medical Society forward to meet the growing challenges ahead.

And finally, to the SMS board members for their support and leadership over the past year. My tenure as president would have been diminished without your dedication, advice and encouragement.

Thank you so much for the opportunity to serve as your president. It's been a wonderful experience. But the job is far from over. Please join me in the hard work of uniting our profession by building SMS membership. Thank you.

Lockhart: Remain constant to patients, profession and self

Jack M. Lockhart, MD, addresses SMS members and guests during his inauguration ceremony.

A few years ago Gene Hackman starred in a movie called *Hoosiers*. It's the story of a tiny Indiana high school basketball team that overcame all odds to win its state championship.

A story of heroes and hard work, self-sacrifice and commitment—small town life in the heartland in the mid-Fifties.

For most of you, *Hoosiers* was an entertaining movie. For this Indiana native, it was a documentary.

My hero was real. Dave Gordon, captain of the Connersville Spartans when I was in fifth grade and well on my way to my full six feet, eight inches.

Dave took us all the way to the semi-finals before graduating and going East to study medicine.

Around that time I made a decision to emulate my high school hero and become a doctor too.

But while my decision to pursue medicine was based on the action of my high school hero, my concept of what it is to be a physician was formed much closer to home.

My father was a solo practice family physician for 40 years. While the practice of medicine changed dramatically both economically and scientifically during those 40 years, my father did not change. His commitment to his patients, to the special bond that is the doctor-patient relationship was constant.

And that is what I want to talk about today. Remaining constant, unchanged while a world of change swirls around us.

Remaining constant to our patients, constant to our profession and constant to ourselves.

What do I mean about being constant to our patients?

I mean those words Hypocrites penned, lo those many hundreds of years ago, still hold true today:

"Whatever, in connection with my professional practice or not, all that may come to my knowledge in the exercise of my profession or in daily commerce with men, which ought not to be spread abroad, I will keep secret and will not reveal."

I am troubled by what I hear in hospital hallways and physician lounges, at dinner parties and in cocktail conversations.

Physicians and physician spouses are too often guilty of violating our patients' privacy and confidentiality. An innocent remark, a casual reference to a patient.

It is wrong, it violates our oath—more importantly—it violates our patients' trust.

"Physicians and spouses are too often guilty of violating our patients' privacy and confidentiality– an innocent remark, a casual reference to a patient. It is wrong."

Although the innocent remark is troubling, it is the insidious bureaucratic, external request that is most intrusive and intolerable.

We as keepers of confidentiality must resist such intrusions.

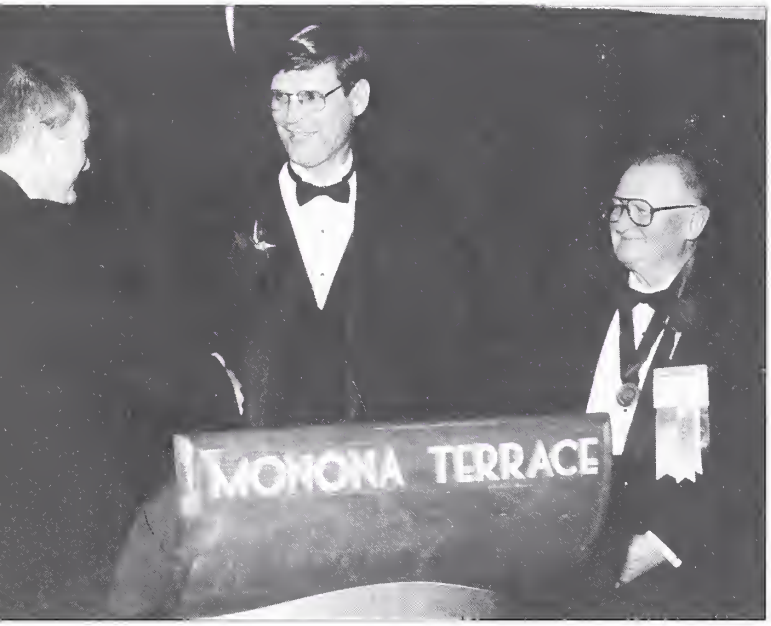
Intrusions like the one last year in Madison when the State Legislature passed the Data Collection Bill. We argued, though unsuccessfully, that this bill—to significantly expand data collection by the state government—would result in a significant loss of patient privacy.

And while the Governor's proposed budget does not provide funding to implement this legislation, we will still have privacy issues.

You all remember last summer when the Madison bus was deliberately set on fire, resulting in severe burns to several riders.

Months later hospital officials were quoted in the *Wisconsin State Journal* as saying the reason they lost money last year was because they took care of the burn victims.

One of the victims was outraged by that disclosure. She decried the release of private billing information and defined it as a violation of patient confidentiality that was just plain tacky.



Board Chair Mark H. Andrew, MD, and Immediate Past President John D. Riesch, MD, congratulate Jack M. Lockhart, MD, on becoming the 146th president of the State Medical Society of Wisconsin.

She's right on both counts. It is a violation of patient confidentiality and it is just plain tacky.

Now, let me be clear. It's not the collection of information that is tacky. It is the improper disclosure of that information. Like any coin, data collection has two sides. And, we as physicians must understand that. We must understand that evidence-based medicine is good medicine and good data is its backbone.

Just look at the good, exciting—and most of all, useful—information you received today with the results of the first Outcomes Research Project about asthma. Essentially, we learned that we do a lot right, but we can do better.

Remember, those involved went out on a limb—trying to improve how they practice. With some of the data it will be easy to say, "Wow, look at how well we do!" The goal, though, is to say, "Hey, if I do this, my patients will be even better." For instance, if we give our patients written instructions on how to live with their asthma, they do better.

That's exciting. That's meaningful information that each of you here can take back to your office. Can use in your practice. Can

"If bean counters want to make medical decisions, they–or their entity–ought to be held accountable for those decisions. It's not fair that our medical decisions are being dictated and determined by budgets, by bottom lines."

provide better medicine for your patients.

The adult asthma project is one of several outcomes projects SMS is conducting. But, to be successful, we will need your help. The ongoing project studies need you and your patients' cooperation if this is to be a successful partnership.

You know, this is only one of so many exciting programs SMS has in the works.

Yesterday we held a press conference to announce a statewide project with the Marshfield Medical Research Foundation and the Wisconsin Division of Health—funded by the CDC—to address the problem of bacterial antibiotic resistance. We will be working to reduce antibiotic usage.

The objectives of this five-year program are to reduce the proportion of adults who expect antibiotics for URI symptoms, reduce the rate of antibiotic prescribing, and reduce the prevalence of penicillin resistant Pneumococcus.

I urge you to contact SMS to learn more about these initiatives and how you can help your patients and your profession.

Let's talk a moment about our profession—and even more—about our professionalism.

I fear it's being assaulted from all sides.

I told you that my father was a physician. Although I can do so much more for my patients than my father ever dreamed of, some days I envy him.

His examining room was big enough for two and only two.

Today, I—we—hear that cacophony of knuckles rapping on our doors, demanding to be let in, demanding to share in the decision-making process. And, worst of all, jockeying for position to wrestle that decision-making away from us.

We've got to get some patient protection. And, it needs to be done in a better fashion than disease by disease and procedure by procedure.

If bean counters want to make medical decisions, they—or their entity—ought to be held accountable for those decisions. It's not fair that our medical decisions are being dictated and determined by budgets, by bottom lines.

Let me give you an example. A large part of my practice is rheumatoid arthritis.

There's a new drug just on the market, Enbrel. It seems to be a dramatic breakthrough. It reduces significantly joint pain and swelling, when coupled with Methatrexate, our best current available therapy.

The results seem dramatic, but I've had trouble giving Enbrel to anyone because it is extremely expensive. Almost $1,000 a month. I have had trouble finding insurance plans that will allow my patients to use it.

"Take time, as the saying goes, to stop and smell the roses. Devote the same energy and effort to building physician-family and friend relationships as you do to physician-patient relationships."

Or, they tell me I first have to "try" two other drugs before being allowed to use the one I think is right for my patient.

You've all got your own Enbrel stories. It's frustrating for both you and your patients.

But, perhaps now that Washington has all agreed on what the definition of "is" is, we can get on to giving our patients the protection they deserve. Perhaps we can push a meaningful Patient Protection Act though this Congress.

We've talked about taking care of the needs of our patients and of our profession. Now I want to talk about ourselves. You and me, as spouses, as parents, as members of our communities.

There isn't a profession that demands more of a family than medicine. Whether it's irregular dinner hours, missed school plays, or interrupted social events with your spouse. Physicians and their families are at risk for constant disruption.

My dad worked long hours in his practice, kept Saturday office hours and evening ones too. And felt he could get away only one week a year for a family vacation.

Today, like many of you, my clinic doesn't have office hours on Saturday and allows me four to six weeks for vacation and professional meeting time each year. And I know that when I'm away, my patients are being taken care of in the same manner they would be if I were there.

I'm not saying we don't work as hard as the generation before us because I think our work is much more intense than ever. But I am saying that we do have more time to devote to family and community than ever before.

So what do we do with that time? Use it wisely.

Take time, as the saying goes, to stop and smell the roses. Devote the same energy and effort to building physician-family and friend relationships as you do to physician-patient relationships.

Take time to enjoy yourself. Read a book, paint a picture, watch a sunset.

Or, like me, buy a yo-yo... and learn to walk the dog, rock the baby , go round the world. Or, the one I'm still working on: help the monkey climb the string.

I am so honored for the opportunity to serve as your president this coming year. And I thank you for it. But I would be remiss if I did not also thank those who have supported me in making this year possible.

I'd like for you to meet them and I'd ask that you hold your applause till all have been introduced.

My wife of 30 wonderful years, Joyce. Our three children.

Jennifer, who will soon be finishing her studies in social work at UW-Oshkosh. Jack, who works for my brother in Chicago in real estate development. Jeff, who is a senior majoring in biology at DePauw University in Greencastle, IN.

My brother Bill and his wife Robin, from Chicago.

My extended medical family at the Gundersen Clinic, represented by Dr. Phil Dahlberg and his wife Mary K. Phil is our clinic president. My partner Dr. Gary Bryant and his wife Lori. My partner and golf coach, Dr. Peter Valen.

My mentor who helped and counseled me in so many ways over the years and a Past President of SMS, Dr. Pauline Jackson.

And members from our clinic support staff, who were not able to be here, but who work everyday to keep me on time with my patients...

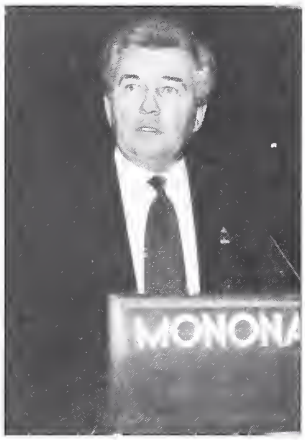
And finally, the many close friends from the La Crosse area who have journeyed here tonight to share this honor with me. If all the La Crosse area people would stand.

Please join me in expressing my appreciation in thanking them.

Once again, thank you for this opportunity. Now, let's party.

Members of the SMS Board of Directors at the 1999 Annual Meeting

Patchett: Bold approach needed as membership declines



SMS Executive Secretary John E. Patchett, JD, addresses the House of Delegates during the SMS Annual Meeting.

Essential. Is the State Medical Society essential to you? To your colleagues? To every physician in the state? Unfortunately, no.

Doctor Andrew spoke about a bold future for the State Medical Society— including becoming an organization physicians believe is essential.

Before the House of Delegates are resolutions and reports that either directly or indirectly revolve around membership issues. There has been a transition in SMS membership. And it's not in the right direction. More physicians are deciding the Society is not essential to them or their practice.

The Society has faced a lot of transitions throughout its history. In 1871, Dr. H. B. Strong addressing the House stated: "Medicine is, at present, in the midst of one of these transitions... The danger in transition periods lies in the tendency of the human mind to oscillate to extremes."

You, too, are in the midst of a transition. And keeping Dr. Strong's words in mind, it's critical that I arm all of you with data. Data that will allow you to make informed non-emotional decisions as you set the future policies and direction for the organization.

Many states and certainly the American Medical Association (AMA) have already reached the critical stage in membership. Let us learn from their experiences.

National membership in the AMA has decreased substantially. Barely one-third of America's physicians belong!

Over the years as medicine became more specialized, organizations formed focusing on an area of expertise. For many years these specialty societies played very little role in advocating health policy and were mostly focused on education and research. Advocacy was chiefly left up to the AMA.

Specialty society membership grew. Now many boast membership rates over 90 percent. The more specialized physicians became, the less they felt they had in common with the profession as a whole. As the diversity of opinions increased, specialty societies took on an increasing role in health policy both within the AMA and directly in their area of expertise.

The AMA, as a result, began to lose membership. National Public Radio featured a 10-minute segment on the AMA just a few weeks ago. The conclusion—it's tough to represent so many differing opinions and speak with one voice. But without a unified voice we are much weaker when we advocate for our patients and the profession. This problem is not unique to the AMA.

"The SMS must recognize the changes in the way physicians practice. It will be important for the SMS to define its role and value with large group practices throughout the state. Greater influence by large groups will be viewed by some as a problem, but failure to provide value to physicians in large groups will mean a very limited future for the SMS."

The State Medical Society too has seen a decline in membership. The change has been slower, and more gradual, but definitely there.

In 1990, almost 80 percent of the physicians belonged to the Society. Four years later, about three quarters. And now—less than two-thirds. The change over the last two years has been dramatic. But the trend had been occurring for awhile. Our actual member count did not decline dramatically until the last few years. But clearly, as more physicians came into the state, our influence was waning.

Think about it. Last year we had almost 7800 members. If we had maintained the market share we had in 1990 we would have had 1700 more members today!

Over the last two years Wisconsin has implemented many changes to enhance membership. Some of the changes include:

- redirecting our staff to talk one-on-one with prospective members, clinics, and specialty societies,
- increasing our advocacy efforts,
- communicating with members and the public more effectively,
- and developing coalitions for our health policies.

However, many of the changes that could enhance membership are more fundamental. They require basic changes to the constitution and bylaws.

SMS membership has always been defined and held by the individual. For many years this model made perfect sense, as most physicians practiced individually or with just a few colleagues. As we all know this is no longer true. Almost 70 percent of Wisconsin physicians practice in groups. There's something to think about. Does only one type of membership make sense anymore? Other state societies are exploring this option, whether it is group or academic membership status.

Another result of the change in practice type has been collegiality. It used to be the county medical society was where physicians could meet, share stories and learn from each other. Now, larger clinics and their physician meetings have diminished the need for interaction outside one's own practice.

This also became evident during the strategic planning process. An outside firm developed a report after interviewing different players in health care about their perception of the SMS. The report concluded:

"The SMS must recognize the changes in the way physicians' practice. It will be important for the SMS to define its role and value with large group practices throughout the state. Greater influence by large groups will be viewed by some as a problem, but failure to provide value to physicians in large groups will mean a very limited future for the SMS."

What would a future without members from large physician groups look like? Just over 30 percent of the physicians in this state

"Without strong membership, the physician voice becomes splintered and ineffective."

would be a members. It would be extremely hard for physicians to be leaders in health policy. Almost impossible to be essential.

Most of our membership loss over the last two years can be attributed to large groups changing how they pay membership dues. For some it was the membership requirement of PIC Insurance going away. For others, intense competition, causing a review of every dollar spent. Whatever the reason, when these large groups leave membership up to the individual many don't find us essential.

Who practices medicine has changed. Thirty years ago only 10 percent of the practicing physicians were women. This year's medical class will have close to 50 percent women among the graduates. Why is that significant? Research has shown most of the female graduates who go on to have families still bear the majority of the family responsibility. They also tend to view health policy in a different light.

One area of emphasis in the strategic plan is to gather more information about women physicians and other demographic groups to better understand the differences and what we can do to increase membership value. One thing is clear as you look at our own membership. We do not attract women physicians in the same number as men.

Maureen O'Brien, Vice President, SMS Membership and Professional Relations, discusses recent community health projects with SMS members present at the Annual Meeting.

Is there an age difference? We are building on our data here as well. What we do know is that expectations have changed. National research shows not only younger physicians but also all young professionals are placing a greater priority on spending time at home with their families.

I was reminded of this while attending a county medical society meeting last year. I happened to sit next to a young physician just one year into his practice. And on my other side was a retired physician. As the conversation went on the older physician told both of us of the days when he first practiced. He was always available. His patients always came first. About a year into retirement, his wife of 55 years passed on. He and his wife had five children. After his wife died, he saw little of his kids, even though two lived fairly near. He leaned over and told the young physician, "Don't make my mistake. My kids don't know me. They knew and admired their mother. Maybe they admire me as a physician. But they don't admire me as a father."

Many of us have been driven to excel, but maybe at too steep a cost. Now some of our kids are pursuing professions differently because they remember wishing Mom or Dad had been around

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more. Some of these kids have become physicians and they do have different expectations.

How are our membership rates with those under 40? Not stellar. Looking at women and younger physician data it's clear we will continue our downward trend, as they become the majority members. Therefore, we need to be sure the SMS creates value and doesn't impose barriers for young and women physicians. Because, they are our future.

The House of Delegates this year has a tremendous responsibility. Before you are proposed changes in how the organization governs and changes in how we define membership. I ask that as you deliberate you consider the information that you've received today. We have a membership problem. It's a fact. Without strong membership the physician voice becomes splintered and ineffective. It is up to this House to solve the problem. The proposals before you may not be the answer. That's fine, but we need to try new approaches because the problem exists and will not go away. Be bold. Take some chances. But do something! We cannot afford to wait. The world is changing. So must we.

In 1942 the president of this organization said, "It would take divine wisdom to foresee the future, but it requires only common sense to keep constantly before ourselves, before the public, and before our legislators the necessity of maintaining unsullied whatever is noble and worthy of the medical art. The only guide we have for the future is experience. Experience is largely a record of our mistakes."

It would be great to forsee the future. The answers would come so easily. But we can only look to past experience, others' experience, and our experiences to avoid mistakes.

Working together, reviewing the facts, keeping the purpose of this organization in mind and using common sense should lead us to answers. For over 150 years the leaders of this distinguished body have debated and developed policy to keep the Society thriving. This organization has endured much change. It will endure more. With your leadership. Thank you.

1999 House of Delegates Action on Board Reports

Resolution 1 directs the State Medical Society to pursue legislation that would reduce speed limits for semi-tractor trailers on Milwaukee County's portion of the interstate and restrict semi-tractor trailer traffic in Milwaukee County to the right-hand and center lanes of the three-lane sections of the Interstate with the exception of areas where the left lane is needed to exit that section of the Interstate. *Action: referred to the Board of Directors.*

Resolutions 2 and 3 direct the State Medical Society to develop and introduce legislation establishing a separate category of state employed physicians defined as "Clinical Practice Physicians," encompassing those physicians whose practices have the same characteristics as those of privately practicing physicians, as distinct from those physicians who are exclusively or predominately engaged in teaching, research, or government services. Resolutions 2 and 3 further direct that such legislation should provide that patients may bring actions for medical negligence against "Clinical Practice Physicians" subject to the same statute of limitations and limitations on damages as are applicable to privately practicing physicians and to employees of the UW Hospital and Clinics Authority. *Action: substitute resolution, as amended, was adopted.*

Membership committee member Tosha B. Wetterneck, MD, testifies during the reference committee on Organization and Finance. Committee Chair Robert E. Phillips, MD, is next in line.

Resolution 3: *action detailed in Resolution 2.*

Resolution 4 directs the State Medical Society to oppose the establishment of any new national credentialing body, be it the federal government or any one monolithic organization, including the AMA. *Action: Reaffirmed current SMS policy (PRP-994) with regard to the AMA Accreditation Program in lieu of Resolution 4.*

Resolution 5 directs the State Medical Society to seek termination of the Patients Compensation Fund and demand that all remaining funds be refunded to the contributing physicians. Late Resolution 33 directs the State Medical Society to develop legislation whereby participation in the Patients Compensation Fund is made voluntary for physicians. *Action: Substitute resolution adopted in lieu of Resolution 5 and Late Resolution 33.*

Resolution 6 directs the State Medical Society to work to include in any "Patient Protection Act" the following guarantees: 1) freedom of consumer choice, including the right to obtain and pay for services outside of Medicare, Medicaid, or any other health "plan;" 2) freedom from government rationing and controls; and 3) freedom from invasion of patient privacy. *Action: Reaffirmed current SMS policy in favor of the Patient Protection Act in lieu of Resolution 6.*

Resolution 7 directs the State Medical Society to work in collaboration with Wisconsin's delegation to the US Congress, the American Association of Retired Persons and other appropriate groups representing individuals insured by Medicare, to secure payment for the inter-hospital transfer of patients who have been stabilized in a hospital emergency department but whose physician(s) work at another institution. Such transfers will often cost senior and disabled patients hundreds of dollars they do not have access to. *Action: adopted as amended.*

Resolution 8 directs the State Medical Society to work with other organizations to develop legislation that would add: a) mandatory impounding for three months all vehicles of first time offenders

with DUI, and b) mandatory impounding and sale of all vehicles for second DUI offenses, and c) use of funding from b) to be used for victim relief of DUI trauma. *Action: adopted as amended.*

Resolution 9 directs the State Medical Society to work with the state of Wisconsin to update state statutes and regulations related to patient medical information in such a manner that the patient controls the release of their medical information. Resolution 10 directs the State Medical Society to actively oppose, and seek to repeal, any legislation that would require physicians to submit patient medical data to the government without the fully informed, written consent of the patient prior to each and every data submission. *Action: Resolution 9 was adopted in lieu of Resolution 10.*

Resolution 10: *action detailed in Resolution 9.*

Resolution 11 directs the State Medical Society to inform the President of the United States that it is deeply dismayed that he has failed to act to protect the millions of American citizens from the danger of accidental nuclear war; and request that the President arrange an agreement with the President of Russia to take all US and Russian nuclear weapons off hair-trigger alert as the next step towards the total abolition of these weapons. Resolution 11 further directs the State Medical Society to request the President of the United States reply to us concerning the danger of accidental nuclear war at his earliest convenience. Resolution 11 further directs the State Medical Society to urge Senators Kohl and Feingold and the entire Congressional delegation to use their positions to assure that the President acts on this urgent, public health problem. *Action: Substitute resolution, as amended, was adopted.*

Resolution 12 asks the State Medical Society to view a "termination without cause" contract as a "de-facto" gag clause that should be eliminated from all contracts physicians have with insurance companies. *Action: adopted AMA policies in lieu of Resolution 12.*

Resolution 13 directs the State Medical Society to work with the Office of the Commissioner of Insurance to develop a standard face page summary for physician contracts with insurance companies. This face page summary should contain an outline of the contract's main provisions similar to those found in contracts for life, health, home and auto insurance. *Action: referred to the Board of Directors.*

Resolution 14 directs the State Medical Society to use appropriate means to alert affected communities when corporate hospital mergers could result in a loss of health care services in that community; to conduct town hall meetings on the effects of proposed hospital mergers and what they may mean to the availability of health care services in a community; and, to have this issue brought to the AMA by the Wisconsin AMA Delegation. *Action: Substitute resolution adopted in lieu of Resolution 14.*

Resolution 15 directs the State Medical Society to recognize that the Health Care Financing Administration has undertaken a campaign of terror against the medical profession and that a master plan be developed to effectively deal with the problem. *Action: substitute resolution adopted in lieu of Resolution 15.*

Resolution 16 directs the State Medical Society to oppose the enactment of any requirement for physician licensure which is not reasonably related to qualifications and fitness to practice medicine. *Action: not adopted.*

Resolution 17 directs the State Medical Society to work with the Wisconsin Legislature and other interested parties to assure that provider-specific information and databases of medical outcomes research projects should be protected from discovery by attorneys' plaintiffs in civil litigation cases. *Action: adopted as amended.*

Resolution 18 directs the State Medical Society to establish policy supporting current ACGME doctrine of "fair institutional policies and procedures for academic or other disciplinary actions taken against residents," including due process in cases of physicians-in-training non-renewal; to support the principle of incorporating language in physician-in-training contracts that guarantees access to an appeals process for non-renewal cases and provides physicians-in-training a reasonable time frame to initiate such appeals; and, to provide a referral source for member physicians-in-training who require legal assistance during their formative years. *Action: adopted as amended.*

Resolution 19 directs the State Medical Society to help physicians educate the public about the dangers of substance abuse, including alcohol abuse, during fetal development, and directs the State Medical Society to work to promote meaningful legislation to help with this problem, including access to affordable treatment for pregnant women. The resolution also calls for the SMS to work with the AMA on these issues. Resolution 25 directs the State Medical Society to educate physicians about the prenatal effects of nicotine, alcohol and cocaine use, to help physi-

cians educate their patients and the general public about the dangers of substance abuse during fetal development, and to assume availability and access to treatment for pregnant women. In addition, the resolution directs the Society to work with the AMA on insurance parity for drug and alcohol treatment and on physician and public education regarding substance abuse and the misperceptions of cocaine versus alcohol or nicotine abuse. The reference committee supported Resolution 19 but believed that all concepts included in it are contained in Resolution 25. *Action: Adopted Resolution 25 as amended in lieu of Resolution 19.*

Resolution 20 directs the State Medical Society to support the Medicaring Initiative through local hospice organizations and promote expansion of the hospice model for other chronic medical conditions. Resolution 23 directs the State Medical Society to support legislation which would eliminate the six month prognosis as the eligibility requirement for Medicare hospice benefits, support alternative criteria for this benefit, and, in addition, promote educational programs for maximizing identification of patients who may benefit from hospice. *Action: Resolutions 20 and 23 were combined and adopted as amended.*

A show of hands determines a vote of the House of Delegates during the SMS Annual Meeting.

Resolution 21 directs the State Medical Society to encourage all physicians caring for newborns to promote Universal Hearing Screening (UNHS) and encourage the development of a coordinated UNHS system for screening, diagnosis and treatment. *Action: adopted as amended.*

Resolution 22 directs the Society to work for bipartisan support to enact legislation that will ensure that funds received from the $206 billion tobacco settlement go for public health needs and initiatives for smoking prevention and cessation. In addition, the resolution directs the Society to establish a coalition of interested parties to pursue these objectives. *Action: adopted as amended.*

Resolution 24 directs the State Medical Society to advocate for legislation which would alter Administrative Rule 144.0 to include the Varicella virus vaccine as one of the required immunizations for children susceptible to Varicella prior to admission to a Wisconsin licensed day care center and Wisconsin elementary, middle or senior high school. *Action: adopted.*

Resolution 25: *action detailed in Resolution 19.*

Resolution 26 directs the State Medical Society to work with the AMA to support efforts to require all health care facilities to provide safety-type needles as alternatives to conventional hypodermic needles. *Action: adopted as amended.*

Resolution 27 directs the elected and appointed officers of the Society to disclose in the *Wisconsin Medical Journal*, on an annual basis, and prior to taking office, all business connections to managed care entities. *Action: referred to the Board of Directors.*

Resolution 28 directs that the State Medical Society approve the establishment of an Addiction Medicine Section and that it be organized as an open assembly in which any member practicing addiction medicine may participate. *Action: adopted.*

Resolution 29 directs the Society to have at least one representative from the Student Section and one representative from the Resident Section on all of its committees, commissions and task forces. It further directs the Society to recommend through its AMA delegation that the AMA enact the same policy. *Action: adopted as amended.*

Late Resolution 30 directs that the State Medical Society of Wisconsin propose an initiative in the State Legislature that will undertake to pass a ban on smoking in the bars, taverns and restaurants in the state of Wisconsin. *Action: adopted.*

Late Resolution 31 directs the State Medical Society to oppose legislation that allows the carrying of concealed weapons in Wisconsin. *Action: not adopted.*

Late Resolution 32 directs the State Medical Society to maintain an active interest in electronic

medical records and medical signatures and requests that the Medical Society work to ensure that any regulation of electronic signatures not be more complex than those for commercial purposes, be minimally intrusive and not be so expensive as to be unattainable for smaller physician groups. *Action: adopted as amended.*

Late Resolution 33: *see action detailed in Resolution 5.*

Late Resolution 34 directs the Society to maintain a schedule of monthly publications of the *Wisconsin Medical Journal* (*WMJ*). It also directs the Board of Directors to find alternative ways of saving money or increasing revenue from the *WMJ* that allows for the monthly publication of the *WMJ*. *Action: not adopted.*

Late Resolution 35 directs that the State Medical Society work with the Medical Examining Board, the Department of Regulation and Licensing and elected officials to expedite the process of granting licenses to new resident physicians recruited to work in Wisconsin. *Action: adopted.*

Late Resolution 36 directs the State Medical Society to study the potential positive and negative effects of changing the Commissioner of Insurance position from an appointed position to an elected position and report back to the House of Delegates in the year 2000. *Action: not adopted.*

Late Resolution 37 directs the State Medical Society of Wisconsin to create a broadly representative commission to clarify Medicare emergency department billing issues, and identify the problems created by the HCFA regulation changes. The commission shall seek guidance and clarification from HCFA, as well as our state and national medical societies' legal counsels on the problems generated by the changes in the HCFA regulations. The commission would interpret existing regulations to provide guidance to the hospital staffs, administrations, and their boards of directors in a report. The SMS should support compliance with the law by all parties and input into the report of these HCFA Emergency Department billing problems should be accepted from the AMA, various hospital associations, the national specialty academies, the specialty sections of the SMS, Medicare, other medical insurance carriers, PIC Wisconsin or other malpractice insurance carriers, the public or other interested parties. Any significant, contradictory or ambiguous problems with the HCFA Emergency Department billing regulation changes should be addressed by the commission with recommendations for clarification or improvements in the wording, or modification of the actual intent of the regulations. Lastly, the SMS/AMA should do all in their power to have HCFA implement any recommendations determined by the commission. *Action: referred to the Board of Directors.*

Late Resolution 38 directs the State Medical Society of Wisconsin to study the issue of the breach of confidentiality of the doctor-patient relationship by self-insuring employers, especially the use of confidential medical records and claims information in employment decisions by the employer. Late Resolution 38 further directs the State Medical Society to work with the appropriate business and regulatory authorities, agencies and associations to stop such practices and to forward a resolution to the AMA House of Delegates for its consideration and attention. *Action: Substitute resolution adopted in lieu of Late Resolution 38.*

Late Resolution 39 directs that State Medical Society policy state that HMOs and Third Party Payors should not interfere with medical prescriptions by insisting upon a specific diagnosis before making a determination on coverage either in whole or in part. Benefits should be based on considerations other than on insisting specific diagnoses being present. *Action: adopted.*

Late Resolution 40 directs the State Medical Society to support the efforts of the American Medical Association's Council on Medical Education to draft an alternative to the Federation of State Medical Boards (FSMB) proposals contained in their report BD RPT 98:5 and to oppose the implementation of FSMB Report BD RPT 98:5 in the state of Wisconsin. Late Resolution 40 further directs the State Medical Society to study FSMB BD RPT 98:5 and develop a plan to respond to any attempt to implement such report in Wisconsin and that such response spell out a variety of requirements related to student and resident discipline. *Action: substitute resolution adopted in lieu of Late Resolution 40.*

Late Resolution 41 directs the State Medical Society to oppose the mandatory point-of-service (POS) provision in the current budget bill, and any other legislative initiatives aimed at requiring employers to offer a POS option or mandating that health plans offer a POS option to individual enrollees if they or their employer has chosen a network HMO option. *Action: current SMS policy (INS-965) was reaffirmed in lieu of adopting Late Resolution 41.*

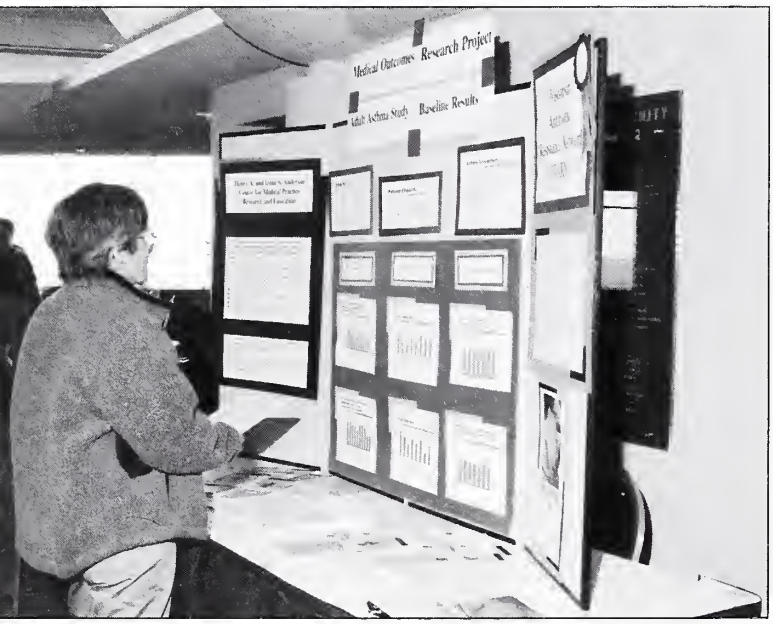
Board of Directors Reports

Report A – Board of Directors: Statewide Pesticide Use Database System. *Action: adopted.*

Report A – Board of Directors: Worker's Compensation Task Force. *Action: adopted recommendations outlined by the Board of Directors.*

Report AA - 1998 House of Delegates Late Resolution 23 – Coverage for Contraceptive Drugs, Devices and Services. *Action: adopted recommendations outlined by the Board of Directors in lieu of 1998 House of Delegates Late Resolution 23.*

Report AA - 1997 House of Delegates Resolution 6 – Reviewer's Responsibility and 1997 House of Delegates Resolution 10 – Corporate Practice of Medicine. *Action: adopted substitute resolution in lieu of 1997 House of Delegates Resolutions 6 and 10.*



The Medical Outcomes Research Project released preliminary findings from its adult asthma study during the SMS Annual Meeting.

Report AA - SMS Policy on Death Penalty. *Action: adopted policy outlined by the Board of Directors.*

Report AA - Timely Payment of Health Service Claims. *Action: adopted recommendations outlined by the Board of Directors.*

Report B - Board of Directors: Better Badger Baby Bus Tour. *Action: adopted.*

Report C - Board of Directors: Universal Newborn Hearing Screening. *Action: adopted policy recommended by the Board of Directors in lieu of policy MCH-994.*

Report C - Board of Directors: Medical Marijuana. *Action: adopted AMA policy H-95.952 (I-97), as amended by the Board of Directors.*

Report CC - Board of Directors: Blood Level Screening Guidelines. *Action: adopted.*

Report CC - Board of Directors: 1998 H/D Resolution 14. *Action: report accepted thereby satisfying 1998 House of Delegates Resolution 14.*

Report D (Exhibit 5) - **Board of Directors:** Proposed Constitution and Bylaws Amendments: Membership Changes. *Action: adopted as amended in Chapter 1, Bylaws, Sec. 10. A.*

Report D (Exhibit 4) - **Board of Directors:** Proposed Constitution Amendments – Report of the Task Force on Governance Structure. *Action: filed.*

Report D - Board of Directors: 1999 Budget. *Action: adopted.*

Report D - Board of Directors: Strategic Plan. *Action: adopted.*

Report D - Board of Directors: Dues Discount Program. *Action: adopted.*

Report D - Board of Directors: 1998 House of Delegates Resolution 21 – Educational Program at Annual Meeting. *Action: adopted recommendation outlined by the Board of Directors.*

Report D - Board of Directors: 1998 House of Delegates Resolution 33 – Practice of Medicine

Report DD - Board of Directors: Proposed Constitution and Bylaws Amendments – Membership Pilot Program. *Action: postponed definitely to a time certain (next year's annual meeting).*

Report DD - Board of Directors: 2000 Dues. *Action: adopted recommendations outlined by the Board of Directors.*

Report DD - Board of Directors: 1998 House of Delegates Resolution 19 – Salary Review. *Action: adopted current SMS policy in lieu of Resolution 19.*

Awards given by SMS in 1999

Each year during the Annual Meeting, the State Medical Society of Wisconsin recognizes leaders in health care, both physicians and non-physicians, who have made significant contributions to the health and well-being of Wisconsin residents. The following awards were presented during the 1999 Annual Meeting in Madison.

Presidential Citation

The SMS President awards the Presidential Citation each year to an outstanding individual who has made a significant contribution to medicine or public health. President John D. Riesch, MD, presented the award to **Philip J. Dougherty, MD**, for his involvement with the SMS and numerous other organizations which have greatly enhanced the image of physicians in Wisconsin and for his expertise on ethics and end-of-life decisions. Doctor Dougherty, a retired internal medicine specialist, has served the SMS in many capacities. He has been a member of numerous commissions, and currently serves on the Council on Ethics and Judicial Affairs.

Distinguished Service Award

Joseph J. Mazza, MD, received the 1999 Distinguished Service Award from the State Medical Society of Wisconsin. The SMS presents the award to a person or persons who have made significant contributions to the science and art of medicine and have furthered medical education. Doctor Mazza, who has practiced internal medicine for two decades, is Director of Medical Education at the Marshfield Medical Research Foundation. He is also on the staff at St. Joseph's Hospital, Marshfield Clinic and is Clinical Professor of Medicine at the University of Wisconsin Medical School. He has been Vice-President of the Marshfield Medical Foundation and regional director of the American Cancer Society.

Doctor Mazza may be best known for his teaching and over 80 published scientific articles. He also established a medical student externship program, which is now a national model. He has been a recipient of the Wisconsin Alumni Teachers Award six times, along with the George Magnin Teaching Award and the Erwin R. Schmidt Award.

Director's Award

The Director's Award is the highest honor bestowed by the State Medical Society of Wisconsin and is only granted on occasion to those who have served with outstanding distinction to the science of medicine, physicians and the residents of the state of Wisconsin.

Richard H. Ulmer, MD, of Marshfield, was the recipient of the 1999 Director's Award. Doctor Ulmer was recognized for his tremendous record of service to the medical profession, his patients and his colleagues. He began serving in the SMS House of Delegates in 1974. He was an SMS Board Director from 1986 through 1995. The Board of Directors elected him vice chair in 1987 and 1988, and in 1989 he was elected chair, serving for six years. He was elected SMS President in 1996. He continues serving on the WISPAC Board of Directors and was a member of last year's SMS Strategic Planning Committee. He also served as a member of the Wisconsin AMA Delegation for 14 years.

Health Leadership Award

The SMS presents the award to a person or persons who have made significant contributions to the development of health care policies that benefit the people of Wisconsin and advance the science and art and medicine. **State Representative Stephen Freese** (R-Dodgeville) was the 1999 recipient of the Health Leadership Award.

Representative Freese championed patient privacy rights by opposing data collection legislation. He authored amendments and used his parliamentary skills as Assembly Speaker Pro Tem to fight the bill.

Representative Freese also worked to protect child safety by supporting stricter laws that cover all-terrain vehicle use by children. In addition, he has made improving access to health care in rural Wisconsin one of his top priorities.

Special Recognition Award

The Special Recognition Award is presented to an individual who has demonstrated representative leadership and support of the medical community. This award was presented to former **Congressman Scott Klug** (R-Madison) at the 1999 SMS Annual Meeting.

Klug served the 2nd Congressional District from 1991 to 1998. During his tenure Klug proved to be a friend of patients and physicians by supporting measures to keep health care affordable, including health reform, tort reform and medicare revisions.

Meritorious Service Awards

Each year during the Annual Meeting, the SMS recognizes leaders in health care who have made significant contributions to the medical profession, and who have given extraordinary service to the SMS, primarily through their tenure on a commission or committee.

The following individuals earned 1998 Meritorious Service Awards:

Mark H. Andrew, MD, of Viroqua, recognized for nine years of dedicated service to the SMS Commission on Governmental Affairs.

Patricia A. Barwig, MD, of Milwaukee, recognized for nine years of dedicated service to the SMS Commission on Maternal and Child Health.

John W. Beasley, MD, of Brooklyn, recognized for 11 years of dedicated service to the SMS Commission on Medical Education.

John T. Bolger, MD, of Waukesha, recognized for nine years of dedicated service to the SMS Commission on Environmental and Occupational Health.

Leslie Selby, Director, SMS Community Health Projects, updates physicians on SMS activities. Physicians toured the newly remodeled SMS headquarters at the Annual Meeting's Friday evening reception and building rededication.

Steven K. Dankle, MD, of Greendale, recognized for nine years of dedicated service to the SMS Commission on Governmental Affairs, including two years as chair.

Michael G. Deeken, MD, of Brookfield, recognized for nine years of dedicated service to the SMS Commission on Addictive Diseases.

Terry L. Hankey, MD, of Waupaca, recognized for six years of dedicated service on the SMS Board of Directors.

Kenneth O. Johnson, MD, of Oconomowoc, recognized for six years of dedicated service to the SMS Commission on Health Care Financing and Delivery.

Charles L. Junkerman, MD, of Milwaukee, recognized for nine years of dedicated service to the SMS Commission on Medicine and Ethics, including three years as chair.

Fred H. Koenecke, Jr., MD, of Richland Center, recognized for nine years of dedicated service to the SMS Commission on Addictive Diseases, including two years as chair and one year as vice chair.

Timothy G. McAvoy, MD, of Brookfield, recognized for nine years of dedicated service on the SMS Board of Directors.

Thomas T. Midthun, MD, of Merrimac, recognized for six years of dedicated service to the SMS Commission on Environmental and Occupational Health.

Michael M. Miller, MD, of Middleton, recognized for nine years of dedicated service to the SMS Commission on Addictive Diseases, including three years as chair.

Sandra L. Osborn, MD, of Verona, recognized for nine years of dedicated service to the WNA-SMS Liaison Commission, including seven years as chair.

Marvin G. Parker, MD, of Racine, recognized for nine years of dedicated service on the SMS Board of Directors, with three years as a member of the Finance Committee and five years on the Commission on Environmental and Occupational Health.

Ayaz M. Samadani, MD, of Beaver Dam, recognized for eight years of dedicated service to the SMS Board of Directors.

David A. Satchell, MD, of Manitowoc, recognized for nine years of dedicated service to the SMS Commission on Mediation and Peer Review, including one year as chair and two years as vice chair.

Robert M. Stern, MD, of Mequon, recognized for 11 years of dedicated service to the SMS Commission on Governmental Affairs.

Physician Citizen of the Year Award

Implemented in 1982 as a colleague-nominated award, the Physician Citizen of the Year Award's annual nomination process was opened to the public in 1991. Each year since then, based on these nominations, the State Medical Society of Wisconsin selects award recipients from various SMS districts in the state.

The Physician Citizen of the Year Award honors recipients for the uncompensated civic, cultural, economic and charitable services they have provided to their local or state communities, recognizing those who have given their time and talents to improve conditions in our state. The 1999 recipients of this distinguished award are:

Kenneth P. Adler, MD, of Eau Claire, recognized for creating The Chippewa Valley Free Clinic. The clinic provides free health care to people in the Chippewa Valley who have inadequate health insurance. Doctor Adler is a volunteer physician and medical director at the clinic. He is also active with mental health organizations.

Jan C. Bax, MD, of Appleton, recognized as the founding member and current board member of the Valley Kids Foundation which raises funds for athletic, educational and medical needs for underprivileged children. Doctor Bax is also a founding member, volunteer and board member of the Children's Museum in Appleton. She is also active with the American Cancer Society, United Way, Boy Scouts and was a volunteer hand surgeon for Desert Storm. Doctor Bax is past president of the Outagamie County Medical Society.

Edwin L. Downing, MD, of Oshkosh, recognized for collecting medical supplies and equipment to send to Africa and Romania at his own expense. Doctor Downing travels to these countries to train and help physicians, medical staff and hospitals in the use of these materials and new procedures. He is also active in Rotary, Evergreen Manor Retirement Community and the United Way.

John Robert Guy, MD, of Waukesha, recognized for his work with the Sister City Organization of Waukesha. Doctor Guy was instrumental in collecting medical supplies and shipping them to Kochatua, Kazakhstan. When the organization lost government support, he helped to bring children, who had congenital heart disease, from that country to the United States for surgical repair. He also raised money to bring to the United States a physician from Kazakstan with breast cancer for treatment. Doctor Guy runs a free pediatric clinic in Waukesha.

Joanne A. Selkurt, MD, of Whitehall, was recognized for starting the Children's Car Seat Program in Whitehall. Doctor Selkurt is active in the Working Women's Group and the Women's Abuse Programs. She also works with the Saving the Children Program bringing children from Niccaragua to the United States who need surgery or medical attention not available in their country. Doctor Selkurt voluteers at the Western Wisconsin Dairyland Family Planning Service and the Wisconsin Cancer Control Program.

Jeffrey Thomas, MD, of Janesville, was recognized for his work as the medical director of Health Net, which provides free care for indigent families in the Janesville area. Doctor Thomas is also the medical director of the House of Mercy Homeless Shelter. He served terms on both the City of Janesville School Board and City Council. He also serves as the voluntary team physician for a local high school.

Amy Hunter-Wilson, MD, Scholarship Awards

This award is presented to American Indians to pursue training or advanced education as physicians, nurses or technicians, or in related health fields. Award amounts are based on the student's admission field of study. The following students were 1999 winners: Lois Ann Tourtillott, Geri Lynn Booth, Adam Miles Pocan, Marie Annete Kemp, Rachel Eva Bowman, Teresa Rose Cornelius, Fred Christopher Haskins.

The John H. Houghton and William J. Houghton Award

This $500 award is presented annually to senior medical students who have shown outstanding scholastic and leadership abilities. The honor is granted to one student at each of Wisconsin's two medical schools. The winners for 1998 are Charles Hu, Medical College of Wisconsin, and Jessica Bartell, University of Wisconsin.

Anti-Smoking Poster Contest

The SMS Resident Physician Section (RPS), along with the American Medical Association, sponsored the "No Ifs Ands or Butts – No Smoking!" poster contest to help combat teenage smoking. The contest attracted entries from students in 6th to 8th grades. The winners were announced at the SMS Annual Meeting in Madison by Jerome Esser, MD, chair of the SMS Resident Physicians Section. Mai Kou Lee, of St. Matthew School in Wausau earned first place for her poster, which features a lit cigarette within a circle, with a bar crossing over it. The slogan reads: "I'm Smart, talented and cool and I DON'T smoke!" She received a $150 savings bond and her poster advanced to the AMA's national poster contest. Runner-ups received a $100 savings bond. They were Sarah K. Wanless, of D.C. Everest Junior High School in Schofield; Kim Rudy and Sarah Shinkle, both of Frank Lloyd Wright Middle School in West Allis; and R.J. Keshemberg, of Maplewood Middle School in Menasha.

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WMJ

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Thomas C. Meyer, MD

Editorial

Zooming In On Mininally Invasive Surgery

by Thomas C. Meyer, MD, WMJ *Medical Editor*

Technological advances over the last 20 years have changed the face of surgery. Procedures that once required long incisions and even longer recovery periods are being replaced by endoscopy and laparoscopy. Patients often go home the same day and can sometimes return to work immediately. In this issue of *WMJ*, feature writer Marc Kennedy examines these types of minimally invasive surgery (p. 14), and also provides an interesting account of a procedure being used at the Marshfield Clinic to treat lower back pain—IDET (intradiscal electrothermal annuloplasty). Although the technique is new, David Bryce, MD, reports that roughly 80 percent of patients treated with IDET experience a reduction in pain and an increase in mobility.

While we had decided that minimally invasive surgery was timely and hoped that there would be interest among that group of surgeons, we are disappointed in our inability to generate manuscripts relating to these procedures. It does, however, allow of the publication of an eclectic group of papers, many of which raise or remind us of interesting problems and some which are certainly news to the Editorial Board.

Chawla and Kochar (p 22) warn of the possible effects of analgesics for chronic pain on the blood pressures of hypertensives in their discussion of the combination of these two common conditions. They provide some guidelines as to which of the common antihypertensive medications may be affected by NSAIDs as well as outlining the mechanisms by which NSAIDs may contribute to raised blood pressure.

The possibility of chronic low level carbon monoxide exposure leading to a series of ill-defined and therefore confusing set of symptoms in three instances over the last four years is a timely reminder at the beginning of the heating season (p 26). While Knobeloch and Jackson's evidence for the association is circumstantial, the discussion of the effects of low-level exposure to carbon monoxide warrants review.

The assessment by Dorio et al of the optimal current modalities by which patients presenting with acute flank pain may have the underlying cause of their distress most efficiently, expeditiously and effectively elucidated is helpful (p 30). While it may be "old hat" to emergency room physicians who see this problem relatively frequently, the article is helpful to those of us who are confronted with these patients less often.

Chaudron and Remington invite us to rethink again some of the issues leading to suicide (p 35) and provide some discussion of the evidence that there has been a reduction in the gender-related rate alongside an increase in the race-related rate of suicide. They provide various hypotheses to which we may or may not subscribe according to our personal biases but there is not, as yet, sufficient data on which to take action. Attitudes toward legalizing physician-assisted suicide in a relatively confined area of the state provided by Hare and Skinner (p 39) brings the issue closer to Wisconsin than Oregon's "Death with Dignity"Act. Similar bills will continue to be introduced into the Wisconsin legislature, and it is helpful to review the reported attitudes and worry about the apparent underlying concerns expressed in the paper. We invite readers to write to the editor about these issues.

Perhaps you would prefer to comment on the paper by Murdock et al (p 44) relating to the study of the Cooperative Cardiovascular Project's findings at the authors' institution. The authors raise the problem of the possible long-term consequences of what seems to be flawed data produced by well-meaning, but unsophisticated technicians using oversimplified data abstraction sheets. *WMJ*, with the authors' permission, asked Metastar to comment on the paper (p 49) and the response is helpful provided Metastar can control the "data" when it filters up through the government bureaucracy of where it may be used in strange and wondrous ways.

There are two case reports of seemingly rare conditions, one of which (p 50) may become distressingly more common, especially in those countries which cannot afford treatment for AIDS. The subtleties of the change in genetic nomenclature from Syndrome to Sequence (p 52) escapes this reader.

"Integrity has no need of rules."

Albert Camus

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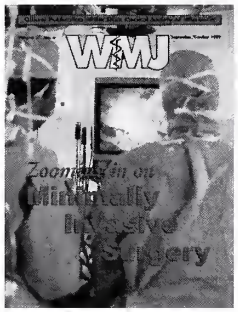

COVER THEME MINIMALLY INVASIVE SURGERY

Just 20 years ago, patients equated having surgery with large incisions, lengthy hospital stays and long recoveries. Thanks to the advent of fiber optics and subsequent technological advances, for many patients requiring surgical procedures today, that scenario is no longer a reality. This issue of WMJ *takes a look at endoscopy, laparoscopy and other types of minimally invasive surgery that allow many patients to walk out of the clinic, and sometimes even return to work, the same day.*

Cover design by Kendi Parvin, *WMJ* Managing Editor

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Jeffrey Thomas, MD

Physician Citizen of the Year

When Medicine and Politics Mix, Patients Win

by Steve Busalacchi, Director, News & Information

A busy orthopedic practice simply isn't enough to absorb the energy of SMS member **Jeffrey Thomas, MD**, of Janesville, a SMS Physician Citizen of the Year.

There are just too many other things going on that command his attention. Some relate to volunteerism, others to politics. But all are forms of community service. His interests are as diverse as serving on the school board to acting as team physician for the Parker High School football squad, to volunteering at a community clinic for the uninsured.

"It's kind of like a hobby for me. I enjoy it so much," says Dr. Thomas of his many activities and interests.

His partner of 17 years, SMS member Frank Brodkey, MD, nominated Dr. Thomas for the SMS Physician Citizen of the Year award out of respect and appreciation for his many good works.

"I think he's just one who likes to stick his neck out and help as many people as he can," Dr. Brodkey says. For example, Dr. Thomas had been seeing patients at a homeless shelter once per week.

"Usually he has to see people with problems outside of his specialty area (orthopedics)," notes Dr. Brodkey. "He'll actually have to use a stethoscope," chuckles Brodkey, who says his colleague was an easy choice for recognition.

Based on nominations from the public, the SMS selects up to eight winners from throughout Wisconsin. The award honors dedicated physicians like Dr. Thomas for the uncompensated civic, cultural, economic and charitable services they have provided to their local or state communities.

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by Jeffrey Thomas, MD

Doctor Thomas recalls his local pastor encouraging him to run for School Board, which he did. His tenure on the Board lasted from 1977-89, including the last three years as president.

His civic involvement didn't stop there. In 1992, Dr. Thomas was elected to the Janesville City Council, where he served until 1996.

"If you get involved, suddenly you've got the bully pulpit," explains Dr. Thomas, who is convinced that physicians are well suited for politics.

"With some of the talents we as physicians have, it's a natural thing. We're trained to listen and care."

Combine that empathy with experience and knowledge, and Dr. Thomas believes physicians have the capability to make important public service contributions.

"You can talk...with some degree of expertise. We're taking care of patients on a daily basis, and if we have frustrations with things we don't think are getting done properly, then we can talk about it."

Doctor Thomas also chooses to write about it. Poetry is among his many interests, and not surprisingly, the poems are related to health care. In one he titled "Patient Care," the focus is on the physician's loss of control over treatment options.

Besides his poetry, Dr. Thomas enjoys playing the piano and has even played at a local restaurant.

His future plans include a fourth run for Congress because he believes patients need greater representation and lawmakers need to hear more physician viewpoints. "(Politics) gives us a better voice in medical care."

Who's in the News

Mark H. Andrew, MD

Karen R. Kronman, MD

Richard G. Roberts, MD

Susan L. Turney, MD

Governor Tommy Thompson has appointed SMS Board Chair **Mark H. Andrew, MD,** to the Governor's Privacy Task Force. The task force will study the accessibility of personal information in the state and develop a comprehensive privacy action plan to give Wisconsin citizens more control over their own confidential records.

Tracy L. Bretl, DO, was installed as president of the Wisconsin Association of Osteopathic Physicians and Surgeons at their recent convention in Brookfield.

Donn D. Fuhrmann, MD, was installed as the 52nd president of the Wisconsin Academy of Family Physicians at the Academy's annual meeting. Doctor Fuhrmann is a family physician in private practice at the La Salle Clinic in New London and an assistant clinical professor in the Department of Family Medicine at the University of Wisconsin Medical School.

The Wisconsin Academy of Family Physicians named **Matthew P. Grade, MD,** of Prairie du Sac as 1999 Family Physician of the Year. Doctor Grade has been with the Prairie du Sac Clinic since 1990.

Physicians participating in the UW Medical School's Primary Care Clerkship Program are **William G. Gustafson, MD,** from the Kaukauna Clinic, **Jack Robinson Meyer, MD,** and **Brian K. Scott, MD,** both from the LaSalle Clinic in Little Chute; **Tod C. Lewis, MD, Richard R. Stoughton, MD, Gregory B. Thatcher, MD,** and **T. J. Thomas, MD,** all from the Shawano Clinic. The program pairs third-year medical students with primary care physicians to give them personal guidance and clinical supervision they need in order to prepare themselves for a career in medicine.

Karen R. Kronman, MD, an obstetrician/gynecologist with the Dean Medical Center, was appointed to the Physicians Insurance Company (PIC) of Wisconsin Board of Directors. Doctor Kronman is filling the vacancy created by the retirement of **William L. Treacy, MD,** who served on PIC's Board of Directors since 1986.

Randall W. Lewis, DO, was honored as Osteopathic Family Physician of the Year at the annual meeting of the Wisconsin Association of Osteopathic Physicians and Surgeons. Doctor Lewis practices in the Crivitz and Marinette areas.

Richard G. Roberts, MD, JD, of Verona, was elected president-elect of the American Academy of Family Physicians at the 88,000-member organization's annual meeting in September. He will be sworn in as AAFP president in September, 2000.

Governor Tommy Thompson has announced the reappointment of **Darold A. Treffert, MD,** of Fond du Lac, to the Medical Examining Board.

SMS Board Member **Susan L. Turney, MD,** of Marshfield, has been appointed chair of the American Medical Association Ad Hoc Task Force on the Evaluation and Management Documentation System. The task force will advise the AMA Board of Trustees as it continues to work with HCFA to refine, test and evaluate the E&M documentation system prior to implementation.

Anesthesiologist, **Jose A. Villacrez, MD,** was among a group of physicians, nurses, x-ray technicians, laboratory technicians and others who traveled to Peru on a two-week medical mission in June. Doctor Villacrez retired from the Monroe Clinic in 1997 after 34 years of service.

AMA Awards

The SMS member physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations.

Arthur A. De Smet, MD
Stewart W. Gifford, MD
Richard C. Greene, MD
Elizabeth V. Hilbelink, MD
Chuong Chun Huang, MD
Leslie C. Jameson, MD
Larry P. Kammholz, MD
William B. Kelley, MD
Paul A. Larson, MD
David K., Mahon, MD
Azadeh Modaresiesfeh, MD
William V. Roberts, MD
Dorothy J. Zajac, MD

Welcome New Members

The individuals listed below were recently elected to SMS membership by their County Medical Societies. We are pleased to welcome them to the SMS.

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Robert A. Keane, MD

Barron-Washburn-Burnett
Bradley P. Bekkum, MD

Brown
Lisa R. Anthony, MD
Mark W. Bertagnoli, MD
Carla J. Hassel, DO
Rafael R. Medina, MD
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In Remembrance

Conway, John Edward, MD, 82, of Sun City West, AZ, passed away August 1, 1999. He earned his medical degree from the University of Wisconsin-Madison.

Following his medical internship and residency at Ancker Hospital in St. Paul, MN, Dr. Conway practiced medicine in the US Army from 1943-1946. After World War II, he practiced in St. Cloud, MN, before relocating to the cities of Neenah and Menasha, where he practiced for the next 30 years. Doctor Conway was a founding member of the Riverside Clinic in Menasha, and the Nicolet Clinic in Neenah and Menasha. He was a past president of the Wisconsin and Upper Michigan Society of Ophthalmologists and Otolaryngologists and a member of the 1990 SMS Fifty Year Club.

Doctor Conway is survived by his wife, Doris; his four sons, John (Nancy), of Seneca, SC; Barry (Debi), of Atlanta, GA; Patrick, of Dallas, TX; Kevin, of Atlanta, GA; and grandchildren, John III, Christopher, Neil, Matt, Cory, Parker and Bailey.

Edrozo, M. Luz Luna, MD, 55, of Green Bay, passed away June 28, 1999. She earned her medical degree from the University of Santo Tomas, Manila, Philippines. She completed a pathology residency in Charlottesville, VA and psychiatry residencies at the Karl Menninger School of Psychiatry, Topeka, KS and the Winnebago Mental Health Institute in Winnebago. She practiced psychiatry in Green Bay with Bay Psychiatric Services since 1992.

Doctor Edrozo is survived by her husband, Johnny A. Edrozo, MD; three children, Francis and Gretchen, of Milwaukee; and Paul, of Green Bay.

Gehring, John Vernon, MD, 70, of Green Bay, passed away June 20, 1999. He served in the US Marine Corps as a sergeant during the Korean War for four years. He earned his medical degree from Marquette University in Milwaukee and completed a three-year residency in psychiatry at The Mental Health Institute in Cherokee, IA.

Doctor Gehring was in private practice in the Green Bay area from 1963 to 1992 and also practiced at the Brown County Mental Health Center, Green Bay, as an associate clinical director in the nursing facility and ICF/MR and psychiatrist in the child/adolescent inpatient unit. He was very active in several organizations including the Brown County Medical Society, serving as secretary and treasurer, the Wisconsin Psychiatric Association, American Psychiatric Association, and the AMA.

Doctor Gehring is survived by his wife, Catherine; three children, Guy and Andrew, of Green Bay; and Christine (Dennis) Gehring-Barry, of Coral Springs, FL.

Hirsch, Samuel Roger, MD, 68, of New Berlin, passed away August 3, 1999. He earned his medical degree from the University of Wisconsin-Madison and completed his internship and residency at the University of Illinois in Chicago.

As a captain in the US Air Force from 1958-1960, he was chief of medicine at Hill Air Force Base in Ogden, UT. Doctor Hirsch was an allergist and immunologist with the Zablocki Veterans Affairs Medical Center until 1980 when he went into private practice. While at the VA, he developed a device called a viscometer. He co-wrote *The Allergy Cookbook and Food Buying Guide*, complete with recipes and grocery store shopping guidelines to help people with allergies.

Doctor Hirsch is survived by his wife, Sharon; his children, Daniel (Cynthia Drapac), of Clarendon Hills, IL; Michael (Michelle), of Brookfield; and Rachel, of New Berlin. A daughter, Sharon, is deceased.

Idarraga, Samuel, MD, 65, of Marshfield, passed away June 12, 1999. He earned his medical degree from the University of Caldas School of Medicine in Manizales, Columbia, South America and completed his internship at the University Hospital in Manizales. He completed his residency at Mt. Sinai Hospital and Schwab Rehabilitation Hospital in Chicago prior to coming to the Marshfield Clinic in 1970.

Doctor Idarraga had an interest in industrial rehabilitation and pioneered disability evaluation at the Marshfield Clinic. He was director of Rehabilitation Services at Saint Joseph's Hospital and chairman of the Department of Physical Medicine and Rehabilitation at the Marshfield Clinic prior to his retirement in 1997. Doctor Idarraga was a Fellow in the American Academy of Disability Evaluating Physicians, a member of the American Academy of Physical Medicine and Rehabilitation, the International Rehabilitation Medicine Association, the Wood County Medical Society, the AMA, and served on the SMS Committee on Environmental and Occupational Health.

Doctor Idarraga is survived by his wife, Maria; four sons, Dr. Samuel H. (Dr. Mary Beth Phelan), of Menomonee Falls; John (Sharon), of Eau Claire; Dr. George A. (Lisa), of West Allis; Edward (Renata M. Rohleder), of Minneapolis; and seven grandchildren, Joyce, Alexander, Jonathon, Andrew, Katrina, Zoe Hannah, and Raina.

Kincaid, Charles K., MD, 91, of Madison, passed away July 10, 1999. He earned his medical degree from Ohio State University

in Columbus, OH and completed his internship at Methodist Hospital, Indianapolis, IN. He served in the Army Medical Corps in World War II, rising to the rank of major. Doctor Kincaid was a member of 11 local, state and national associations concerned with the fields of public health and preventive medicine, and served as president of the Dane County Medical Society, Wisconsin Health Council, Wisconsin School Health Council and Wisconsin Public Health Association. He was a member of the 1985 SMS 50 Year Club and an SMS Life member.

Doctor Kincaid is survived by his wife, Arline "Pat" Anderson Knaak; her daughter, Jill M. Knaak; his children, Margaret Jo Culberson and Mary C. Kronvall, of Grand Junction, CO; and Thomas, of Marietta, GA; six grandchildren; and six great-grandchildren.

Maddix, Bill L., MD, 68, of Knoxville, TN, passed away June 29, 1999. He joined the US Navy in 1951 and served as a hospital corpsman until 1955. He earned his medical degree from the University of Kansas in 1961, interned at St. Luke's Hospital, Duluth, MN and served his residency at Hurley Hospital in Flint, MI and the University of Michigan. Doctor Maddix practiced internal medicine at The Monroe Clinic from 1965 until 1995. He was chief of staff at St. Clare Hospital in 1985, and he served on the hospital board of directors from 1986-1992 and The Monroe Clinic Foundation for Medical Research and Education board of directors from 1983 to 1990. He was a member of the American College of Physicians, the American Society of Internal Medicine, the Green County Medical Society, the AMA, and the Southern Medical Association.

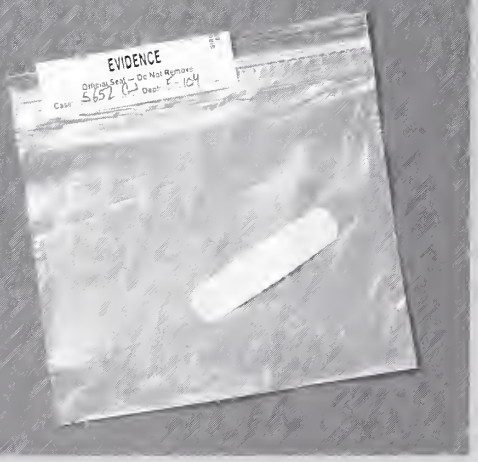
Doctor Maddix is survived by his wife, LaVerne; his sons, Robert (Mary), of Des Moines, IA; Steven (Rebecca), of DeForest, WI; and his grandchildren, Joshua, Corinne and Erica.

Mann, Robert W., MD, 87, of Milwaukee, passed away July 7, 1999. He earned his medical degree from Rush Medical College in Chicago, completed his internship at Mount Sinai Hospital, Milwaukee and surgical residency at Mount Sinai Hospital in New York, NY. He served three years as an Army Major in the European theater in World War II before setting up private practice in Milwaukee in 1945. He became chief of surgery at Mount Sinai and later at Trinity Memorial Hospital in Cudahy, now St. Luke's South Shore Hospital. He retired from surgery in 1984.

Doctor Mann was a Fellow of the American College of Surgeons, member of the Wisconsin Surgical Society, charter member and past president (1969-1970) of the Milwaukee Academy of Surgery,

exhibit A:

Adhesive bandage, which plaintiff alleges defendant pulled rapidly from skin, violently tearing three hairs from plaintiff's arm, which resulted in severe shock, trauma, disfigurement, chronic debilitating pain and permanent psychological damage.



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secretary/treasurer of the Milwaukee County Medical Society in 1956-1957, and a member of the 1987 SMS Fifty Year Club.

Doctor Mann is survived by his wife, Audrey; his children, Kathleen, of Aspen, CO; Constance (William) Owen, of Ennis, MT, Richard (Peggy), of Albuquerque, NM; his stepchildren, John Scheinfeld, of Los Angeles; Bob (Cecily) Scheinfeld, of Clearwater, FL; Shaina (Richard) Noll, of Santa Fe, NM; and seven grandchildren.

Nebel, John "Jack" R., MD, 83, of Neenah, passed away July 16, 1999. He earned his medical degree from the University of Wisconsin Medical School and completed his internship with St. Luke's Hospital, Duluth, MN. Doctor Nebel served as a captain with the US Army from 1942-1945. He entered Normandy on D-Day plus one as a field medic, served with the 94th Infantry Division, Michigan and Kansas, and the 2nd Infantry Division, Wisconsin, Ireland, Wales and France. While stationed in France he served as a physician for German POWs. He was awarded the Purple Heart and the Victory.

Following the war, Dr. Nebel entered into private practice in Menasha and at Theda Clark Memorial Hospital until his retirement in 1983. He served as president of the Winnebago County Medical Society, and was a member of the American Society of Clinical Hypnosis and the 1991 SMS Fifty Year Club.

Doctor Nebel is survived by his wife, Jane Dickman Nebel; his children, John Jr. (Lynn Ann Sauby) of Menasha; Mary, of Menasha; Mark, of La Crosse; Armin (Cindy), of Stevens Point; and Jane Ann (Dick) Milheiser, of Eau Claire; nine grandchildren and two great-grandchildren.

Sims, J. LeRoy, MD, 86, of Madison, passed away September 6, 1999. He earned his medical degree from the University of Texas Medical School in Galveston. He completed his internship at Wisconsin General Hospital (now University Hospital), then worked at Midway Hospital in St. Paul, MN before returning to complete his internal medicine residency at University Hospital.

Doctor Sims served in the US Army and was a member of the Wisconsin General Hospital Unit, the 44th during the Pacific Theater. After the war, he stayed in the 44th Medical Reserves and retired as a full colonel in 1966. In March of 1946, he joined the faculty of University Hospital and served the Medical School and the hospital in many capacities. He was a consultant to the Surgeon General of the Army for many years, served six years as governor for Wisconsin of the American College of Physicians, and was coordinator of outreach continuing medical education for the medical school until his retirement. Doctor Sims was a member of the 1987 SMS

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Fifty Year Club and a SMS Life Member.

Doctor Sims is survived by his wife, Anne; three children, John (Trish), of Seattle, WA; Elizabeth (Oscar) Gish, of Seattle, WA; and Tom (Pamela), of DeKalb, IL; and two grandchildren, Joey and Alex.

Tormey, Jr., Thomas W., MD, 90, of Madison, passed away August 28, 1999. He earned his medical degree from the University of Wisconsin-Madison and had further training at Washington University in St. Louis, MO, and at the Cleveland Clinic in Cleveland, OH. He practiced medicine in Madison from 1935 until his retirement in 1989. Doctor Tormey was a member of the Dane County Medical Society and the AMA, a member of the 1983 SMS 50 Year Club and a SMS Life Member, and was secretary of the Wisconsin Medical Examining Board for 16 years.

Doctor Tormey is survived by his wife, Esther; three sons, Thomas, III (Beverly), of Madison; William (Jane), of Madison; and Anthony, MD (Cathy), of Aurora, CO; eight grandchildren, and a great-granddaughter.

Tracy, Michele Lee, 24, of Middleton, passed away July 4, 1999 from injuries received in a bus/train accident in the southeast Africa nation of Malawi. She was with a group of students who were traveling as part of a four-week class to study the health-care systems of African nations. She was enrolled at the University of Wisconsin Medical School and had just completed her first year.

Ms. Tracy was involved with the LOCUS program at the university, which deals with public health and community involvement within the community. Through the LOCUS program, she was matched up with Cindy Haack, MD, and did volunteer work at the Belleville Clinic. She also volunteered for the Medic Program. She was an active volunteer in the community, including AmeriCorp VISTA, University of Wisconsin-Bradley Learning Community, Hudson Valley Hospital, Literacy Volunteers of America, Peekskill Youth Network and the McArdle Cancer Research Laboratory.

Michele was a licensed amateur radio operator since age 9 and she authored "Healthy Transitions." She designed and implemented a peer education training program for people with HIV and a Health Education Resource Center, which was awarded funding by the Centers for Disease Control.

Ms. Tracy is survived by her parents, Danny and Candice, of Middleton; a brother, Brandon, of Middleton; AFS brothers, Christian Mora (Costa Rica), Marco Mus Esbri (Spain); AFS sister, Chiho Yagi (Japan); and her grandparents, Margaret Tracy, of Cuyahoga Falls, OH; Robert and Mary Troyer, of Stow, OH; and Mary Lou Ziegler, of Bath Township.

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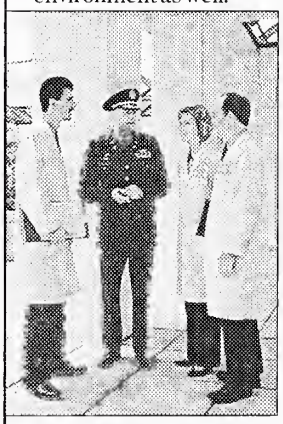

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Cutting Back on Cutting

Surgical advances mean less invasive procedures, quicker patient recovery

By Marc Kennedy, special to WMJ

Before the late 1970s, a certain level of morbidity accompanied nearly any invasive surgical procedure. It went without saying that a patient would require "x" amount of recovery time based on the size of the incision, the risk of infection or other complications. This, in turn, meant either time in the hospital or at least a period of bed rest, which both have economic ramifications of their own — the medical cost of keeping someone in the hospital and the cost of time away from the workplace while the patient healed. Whether these were incurred by insurer, employer, employee or a combination of all three, the result was loss of time in the labor force. For the patient, of course, the bottom line was the period of days, and sometimes weeks, of recuperation—of discomfort, rehabilitation and often worry of infection or other side effects.

Historically, some patients balked at certain surgeries that were not at the time life-threatening because of the long rehabilitation and time away from work. Some insurers and employers would cover only partial costs, sometimes not at

all. With the advent of fiber optics, all of this began to change. Now, procedures that once demanded days or even weeks of bed rest and long rehabilitation are done in a matter of hours — sometimes minutes. Depending on the procedure and anesthesia used and lack of complications, many patients walk out of the clinic and go back to work the same day.

Advances in endoscopy and related forms of minimally invasive surgery have saved an inestimable amount of lost labor for industry and discomfort for patients in the ensuing two decades. And as technology improves, it allows surgeons to enhance procedures and venture into new types of surgery using fiber optics that were unthinkable even a few years ago. Physicians themselves marvel at these developments.

"The most exciting development with endoscopes in my work is the ability to minimize the size of incisions," said John Rhee, MD, Medical College of Wisconsin assistant professor, Division of Facial, Plastic and Reconstructive Surgery, Department of Otolaryngology. "This includes the three main components of my procedures: cosmetic, reconstructive and maxillofacial trauma."

In cosmetic surgery, Dr. Rhee said endoscopy has gained popularity for work in the forehead and brows.

"It has replaced the coronal approach, which basically involved a large incision across the top of the forehead," he said. "For a facial rejuvenation procedure in which you use the upper third of the face, you only need to make five small incisions. Before the endoscope, you had to cut ear-to-ear. Now we are using endoscopes for this as well as facelifts and implants."

For reconstructive efforts, surgeons are now applying techniques first used in these cosmetic procedures.

"With endoscopy, we are getting into more exciting procedures," Dr. Rhee said, "for example, cranioplasties. You can correct skull, temple and forehead deformities produced either congenitally or post-surgically. We use procedures similar to an endoscopic forehead lift. The same small incisions act as portholes for implants."

> *"For a facial rejuvenation procedure in which you use the upper third of the face, you only need to make five small incisions. Before the endoscope, you had to cut ear-to-ear. Now we are using endoscopes for this procedure as well as facelifts and implants."*
>
> *John Rhee, MD*

Newly developed bone cements are also becoming more popular due to advances in endoscopy.

"These bone cements are becoming much easier to use," he said. "They are very similar to using caulking guns. You make a small incision, use one endoscope as a porthole to see, then another to place as a caulking gun to apply bone cement. It's very much like bathroom tile caulking. You can mold it into correct shaping and contour. And, the best part is that after a few months, the cement becomes incorporated into real bone; it literally becomes part of the skull."

Doctor Rhee added that this procedure works well for trauma due to auto accidents, or the residual effects of neurosurgical procedures that require skull openings.

"It's a great method to give patients a better sense of self following reconstructive procedures. We can even use the procedure for more simple head and neck surgeries as well."

As an example, Dr. Rhee pointed to removing a tumor of the parotid salivary gland.

"This surgery involves going over the jaw bone to get to the salivary gland. The classic incision goes against skin tension lines of the head and neck, which leaves a scar. But with the facelift type of incision using an endoscope, we can leave only a minor, well-camouflaged scar. And, we are not compromising our ability to get at the tumor."

Another application of this method involves rectifying the result of surgery.

"We can also use endoscopy to help reconstitute the face once we resect a gland. When the gland is gone, it creates a depression. So we use the local muscles in the area to fill in the desection. We can hide this with facelift incisions. We generally do these types of surgeries on men and women in mid-life who tend to be self-conscious."

The third type of surgery involves maxillofacial trauma.

"There are some very exciting procedures developing currently," said Dr. Rhee. "For example, there is a new absorbable plating system. Traditionally, we've used titanium metal. Now a new system involves using polymers, which last only about two years. By that time, the body absorbs them. This is especially good for pediatric patients. Their face or skull will keep growing, so we would have to remove the old titanium implants periodically to adjust for their growth. Now we don't worry about it with this new polymer procedure."

Endoscopy improves in-patient care

For the forehead and brow work cosmetically, in years past with the

coronal approach, a patient had to stay in hospital.

"The large incision is what caused most of the morbidity," said Dr. Rhee. "Now most of these procedures can be ambulatory because we don't have to do the ear-to-ear incision. People are going home much faster. With the five small incisions we use with endoscopy, patients are going home after an hour-and-a-half procedure. The same for facelifts. Using endoscopy has sped up recovery time. This makes insurance companies happy and patients happy because it limits longer hospital stays."

But Dr. Rhee cautioned that having an endoscopic procedure does not automatically mean that a patient will not have to stay in the hospital. "There is a need to balance improving patient care along with cost containment," he said.

By the same token, not every patient is a good candidate for such procedures.

"You also need to carefully select patients. Not all are good candidates for minimally invasive techniques. Some are better for a traditional approach. You need to combine good patient selection with the correct surgical approach."

He added that it takes time for a surgeon to get used to operating with the endoscopic technique, particularly if they were trained in the classical surgical approaches.

"There is a learning curve," he said.

Looking into laparoscopy

Though he was trained in classical surgical technique in the 1960s, John D. Riesch, MD, only likes to "open up" a patient when he has to.

"Laparoscopic surgery is now the norm," said Dr. Riesch, a general vascular surgeon at Medical Associates Health Centers in Menomonee Falls. "I've done 3,700 gall bladders, and I've had to open up three. I've done just a shade under 2,000 hernias laparoscopically. I've done cases of perforated peritonitis, adrenalectomies. We do all hernias laparoscopically. Even some small bowel obstructions can be done this way. With laparascopic splenectomies, I've done 13, and performed one of the first in the Midwest. Most all of these patients are home in one or two days."

For what procedures does he "open up" the patient? "I haven't gotten into colon resection," he said. "But others are doing that laparoscopically."

> *"It still amazes me how much more rapid recovery is, in contrast to opening people up. With gall bladders, many patients are out of the hospital the day of the surgery. Most appendix patients leave the next morning. Hernia patients all go home the same day."*
>
> *John D. Riesch, MD*

As the practice becomes more widespread and instruments and techniques more refined, physicians are beginning to use laparoscopy in new medical areas, such as transthoracic work, biopsies, cholecystectomies and tubal ligations.

Though he and colleagues routinely perform these procedures, the advances in technology that have enhanced the range of laparoscopic, arthroscopic and endoscopic procedures still impresses Dr. Riesch, as does patients' responses to such kinder and gentler approaches to surgery.

"It still amazes me how much more rapid recovery is, in contrast to opening up people," Dr. Riesch said. "With gall bladders, many patients are out of the hospital the day of surgery. Most appendix patients leave the next morning. Hernia patients all go home the same day."

Ambulatory procedures help reduce medical costs due to limited hospital stays, but Dr. Riesch added that the cost of the tools and expertise required offset some of this savings. To him, though, the greatest bonus is limited recovery time for patients.

"This type of surgery is of great benefit to the industry. For industrial-related hernias, patients are back to work in a week. This is a terrific boon to industry because it keeps insurance costs down."

And, he proudly points out, many of the most advanced procedures come from the experience of clinical practitioners.

"Much of this comes from the private world, not from the university," he said of advances in laparoscopy. "Many medical training centers don't do as many procedures or have as much invested in performing laparoscopic procedures as we do."

Such developments include a heated carbon dioxide insulator. "It heats the scope so it doesn't fog up," Dr. Riesch explained. "Plus utensils are becoming smaller and smaller. Optics continue to be improved. Now they are small enough so we can use a third optic, which will make it easier. One of the things you have to learn is to adjust your brain to doing surgery with the scope, and having a third view can help you adapt hand-eye coordination.

Doctor Riesch believes that patients appreciate the advances in surgery. But he isn't shy about helping them understand it better.

"I make videotapes for many patients of their procedures," he said. "It helps them respect the technical advances in medicine. I find it helpful in explaining the process to patients, who can actually see what happens."

When it comes to performing laparoscopic surgery, Dr. Riesch said that surgeons still rely on guidelines as they would with any procedure.

"The vast majority of all gall bladders go home the same day unless there are complications," he explained. "It amounts to using common sense medically."

For many procedures, complications are fewer with laparoscopy, he said.

"For patients with hernias done with traditional surgery, there is about a 10 percent recurrence," Dr. Riesch explained. "Doing them laparoscopically is much more effective. We can do it more practically from the inside. Think of the abdomen as a water tank in the backyard. Think of repairing a hernia like repairing a hole in the tank. Is it best to plug the hole from the inside or the outside? You plug it from the outside; it's like using a cork. But now we can patch inside so the pressure in the abdomen holds it in place. When you do this procedure, and explain it that way to patients, they are overwhelmed. To me it's just another way to showcase to the public how much hard work people put into medicine and how it benefits them personally."

He pointed out another procedure developed for appendectomies.

"We needed to develop a way to prevent the appendix from infecting the intestinal wall while removing it," Dr. Riesch said. "We worked with the engineers at US Surgical to develop a system that uses a condom that we can pull the appendix into with a draw string." The development of these types of new procedures keep Dr. Riesch excited about practicing medicine.

"I'm thankful I was around long enough that I could partake in this type of work. There's a learning curve on laparascopic surgery, but as you become more adept you get better. I think a lot of people dropped away from this type of surgery because they couldn't connect the hand-eye aspect with the scopes. But the younger people have much more experience, because there is more training available. It's kind of funny that now when young surgeons who have done so much laparoscopic work perform open procedures, it can be a little strange for them."

Still, he would like to see even more training in laparoscopy for medical students because with the great improvements in technology only likely to continue, it will be the wave of the future in surgery.

"Surgery is becoming less invasive and more technical," Dr. Riesch said. "Young surgeons better be ready for it."

In some ways, he thinks that the paradigm shift from more open to less invasive surgery was harder for his generation that those that will follow, who inadvertently have had plenty of experience.

"Really, this type of surgery is like playing video games," he said. "Kids are used to this; it's not new to them. My grandkids will be great at it."

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IDET: A new approach to treating lower back pain

by Marc Kennedy, special to WMJ

If you don't have it yet, chances are you will sooner or later. About 90 percent of Americans develop lower back pain at some point in their lives, and they try various modalities — exercise, physical therapy, pharmaceuticals and ultimately, surgery — to relieve it.

When lower back pain becomes chronic and begins to radiate to the legs, it often signifies disc damage, which can occur with or without the herniation or rupture often identified with discogenic pain. Repetitive motion injuries or incidents associated with one particular event — a car accident or lifting attempt — can tear the outer disc wall. If basic conservative care fails for those who develop more serious disc problems, the only treatment option until recently was spinal fusion surgery, which is costly and can compromise spine biomechanics permanently. Nearly 300,000 people had spinal fusion surgery last year.

But now there is a new procedure–IDET (intradiscal electrothermal annuloplasty). With IDET, the physician places a 17-gauge needle into the degenerative disc, then threads a catheter inside containing a copper wire heating element. The element is heated to 90 degrees Celsius (194 degrees Fahrenheit) for about 15 minutes.

"This heats the disc material close to the fissure in question, partially ablating the nerves by coagulating them as well as breaking down the collagen bonds, which ultimately heal more tightly," said David Bryce, MD, of the Marshfield Clinic.

This is a relatively new technique, added Dr. Bryce, but results so far suggest that IDET works as well as fusion and costs much less — about $7,000 compared to $50,000. And, of the 700 or so patients treated with IDET to date, roughly 80 percent report reduced pain and increased mobility, and about half of those taking narcotic analgesics no longer require them.

It is also a short procedure, taking less than 20 minutes to perform under local anesthetic. Though IDET is an outpatient procedure and patients walk out of the hospital, Dr. Bryce emphasized that IDET should not be misconstrued as a quick fix.

"This is not an immediate cure," said Dr. Bryce, an anesthesiologist who teamed with radiologist Lawrence Hutchins, MD, at the Marshfield Clinic, to become the first to try the procedure in Wisconsin. "Patients have to wear a brace for six weeks afterward, mainly to keep them from twisting too much, and to remind them that they have to take it easy. Plus they need to follow a serious rehabilitation regimen for several months."

Despite these cautions, Dr. Bryce is pleased with the outcome so far on the patients he has treated using IDET. But he added that it is too early to judge the long-term implications of the procedure's success.

"People have been trying to treat this type of back pain for years," he said. "Some still use chymopapane injections into the disc to dissolve it. Some are starting to do percutaneous laser discectomies. But a few years ago, there was some work being done for disc pain using radiofrequency ablation of nerves of a disc. It used to be thought that this was not the source of the pain; there was some controversy over what to do with disc pain.

"About two years ago two physicians, brothers Jeffrey and Joel Saal in California started tinkering with this procedure," Dr. Bryce explained. 'They started doing the procedure in shoulders and found that once the cartilage healed it was stronger. The heat breaks the bonds of collagen and, after three to

12 months, actually heals tighter. Most fissures and internal disruptions would be healed. The problem with radiofrequency is that there wasn't enough heat delivered into the disc so you couldn't ablate all of the nerves."

One of the brothers, Jeffrey Saal, MD, developed an instrument called SpineCath, consisting of a 6-inch needle and catheter with a heating element on the end. Using discography to locate the precise point of injury to the disc, they found with the SpineCath they could deliver sufficient heat to ablate the target nerves, and tighten the surrounding ligaments, creating a new stronger bond.

"The Saals published a paper in the peer-reviewed journal *Spine* concerning the outcomes of their first 25 patients six months to a year following IDET," said Dr. Bryce. "From 75 to 80 percent got relief from disc pain. About one-third got great results and are virtually pain-free, another one-third got considerable results, and for one-third the procedure does not seem to work very well. This is basically the same for the dozen patients we treated over the last three months."

IDET Resources

David Bryce, MD
Marshfield Clinic
(715) 389-4976
www.marshfieldclinic.org/

Orthopedic Associates of Portland, Maine
www.orthoassociates.com/IDET.htm

Mission Pain Management Center
PainCare Surgicenter
27800 Medical Center Rd, Ste 161
Mission Viejo, CA 92691
949/364-3333 or 949/364-CARE
www.paincareonline.com
email: paincaremd@aol.com

Not for everyone

Of his 12 patients so far, those treated with single level disc problems are doing excellent, according to Dr. Bryce. "The one patient with two discs is still in pain. Overall, our results roughly mirror the same as other practitioners nationally. But still it's far too early to tell. Some of the good ones have been dramatic. Those with the one level disease went through the hardening program, the physical therapy, very conscientiously. We went to great lengths to point out to all the patients that this is not a cure-all and end-all, and that they need to be realistic."

Doctor Bryce cautioned that not everyone with back pain is an IDET candidate.

"Younger people are good for this procedure," he said, "discogenic pain due to internal disc disruption (IDD) is a younger person's problem. But we can't perform it on a herniated disc or someone with reticular pain."

Doctor Bryce says IDET has a great deal of potential for a wide range of applications.

"Some surgeons are now saying that before spinal fusion it makes sense to first try IDET," he said. "If it works, great. If not, then the patient can have fusion surgery."

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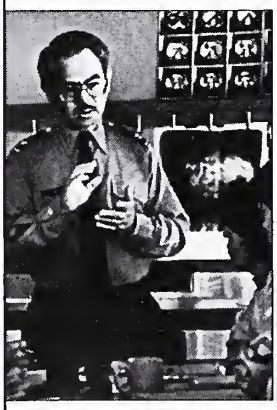

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Recovery prolonged

If there is a drawback to IDET, it is the long recovery time.

"We have patients use a brace for six weeks," said Dr. Bryce, "They have to be prepared for the long haul. They need to do lumbar stabilization exercises for six to nine months. They need to be doing cardiovascular exercise regularly at three months. They have to do physical therapy. It's not a quick cure. You just don't wake up and walk out and you're fine. There is some soreness from the procedure. Plus, the patient will be out of work for a few days or weeks. If IDET doesn't work, and the patient then requires fusion surgery, they can be out of action for some time."

However, for about two-thirds of patients treated so far, Dr. Bryce said the initial discomfort and commitment to therapy is worth it considering the pain relief. The Saals' statistics support Bryce's numbers, as do reports from others performing the procedure across the country. Orthopaedic Associates of Portland, Maine "expect at least over 67% of our patients to get at least 50% of their pain relieved. Early follow up studies show sustained relief (>1 year) in at least 50 percent of all those treated. These data compare favorably with the long-term results of fusion surgery. With continued refinement of the procedure and proper patient selection, the percentage of success should rise."

Doctor Bryce added that there is some risk of infection with this type of procedure and the concomitant discography, and, as with any approach to treating a particular medical condition, a patient and his or her primary physician need to consider all the options.

"For cardiac problems, you start with medication and physical therapy before moving on to invasive heart surgery," Dr. Bryce said. "Discogenic pain is just like answering any other health care question. You start with analgesics and physical therapy, then move on to more powerful painkillers. Then you look at the prospects for IDET. If that doesn't work, you move toward spinal fusion.

"In the long run, IDET will likely mean that there will be fewer single-level fusions performed," he said. "It also depends on the degree of damage. Treating two levels at a time is a lot harder. There's a longer recovery time the more discs you do.

Regardless of the recovery time, for some patients the relief is dramatic and seemingly long term. But Dr. Bryce said it's too early to tell how successful IDET will be over time.

"It remains to be seen what it (IDET) will mean for the whole continuum for back care. We are still looking to find its indications. Also, we need to see in four or five years if patients are more or less susceptible to change—we just don't know yet."

Doctor Bryce and his colleagues presented their findings at the North American Spine Society in Chicago, October 21-24.

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Effect of Pain and Nonsteroidal Analgesics on Blood Pressure

Paramjith S. Chawla, MD, and Mahendr S. Kochar, MD, MS

ABSTRACT

Acute pain increases blood pressure by increasing sympathetic activity, but the role of chronic pain on blood pressure is less well understood. Hypertension and co-existing musculoskeletal problems are two of the common conditions for which antihypertensives and analgesics are prescribed together. Among analgesics, nonsteroidal anti-inflammatory drugs (NSAIDs) are most frequently prescribed. NSAIDs decrease the synthesis of prostaglandins (PG) by inhibiting cyclo-oxygenase, an enzyme essential for transformation of arachidonic acid into PGs. The PGs are important in control of blood pressure by virtue of their effects on the kidney and blood vessels. Among the NSAIDs, indomethacin, naproxen and piroxicam have the greatest, and sulindac the least, pressor effect. The NSAIDs antagonize the antihypertensive effect of diuretics, beta-blockers and ACE inhibitors more than that of calcium-channel blockers. The elderly and those with salt-sensitive hypertension experience greater rise in blood pressure with NSAIDs. Physicians should avoid NSAIDs and instead use alternative analgesics such as acetaminophen and physical therapy for control of pain. If necessary, the dose of the antihypertensive medications may have to be increased for better control of blood pressure.

It is commonly believed that acute pain increases blood pressure. The effect of chronic pain is less well understood. Certain analgesics may affect blood pressure and may interfere with the effects of antihypertensive therapy. Since both pain and hypertension are common, it is important that their relationship be well understood by the primary care physicians.

EFFECTS OF ACUTE PAIN ON BLOOD PRESSURE

The sensation of pain is known to man since time immemorial. Increasing evidence from animal and human research indicates a close relationship between pain regulating systems and blood pressure.[1] The same brain stem nuclei and the same neurotransmitters, monoamines and endorphins are associated with both functions.[2-7] Certain drugs such as clonidine that affect blood pressure, also modify response to pain.[8] In the presence of acute pain as may be caused by an injury, the sympathetic nervous system is activated, resulting in tachycardia and vasoconstriction. Acute pain also causes the adrenal medulla to secrete epinephrine and norepinephrine which circulate in the blood and cause almost the same excitatory effects on the heart and blood vessels as the direct stimulation leading to a further increase in cardiac output and blood pressure.

EFFECTS OF CHRONIC PAIN ON BLOOD PRESSURE

The effect of chronic pain, as may be experienced by patients suffering from osteoarthritis, on blood pressure is not well understood. There is very little in the medical literature on the effects of chronic pain on blood pressure but it is generally believed that the cardiovascular system adapts itself to a state of chronic pain without much effect on blood pressure. In both normotensive and hypertensive individuals suffering from chronic pain due to musculoskeletal problems, there is no change in blood pressure when compared to baseline.

EFFECTS OF ANALGESICS ON BLOOD PRESSURE

Arthritis and other ailments requiring treatment with analgesics are common among elderly hypertensive patients. The nonsteroidal anti-inflammatory drugs (NSAIDs) are among the most commonly prescribed agents worldwide and are available both by prescription and over-the-counter.[9] The effective relief of pain provided by NSAIDs makes this category of drugs popular among both users and prescribers in the elderly. It has been estimated that as many as 20 million people in the United States are concurrently receiving long-term therapy with NSAIDs and antihypertensive agents.[10]

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MECHANISMS OF ACTION OF NSAIDS

The major mechanism of action of NSAIDs is the reduction in the synthesis of prostaglandins (PG) by inhibiting cyclo-oxygenase (COX), an enzyme essential for the conversion of arachidonic acid into PGs. Two isoforms of COX have been identified, COX-I and COX-2. The latter is in inflammation and, therefore, the preferred target for NSAID therapy.[11,12] COX-1 is mainly responsible for the production of PGE2 and PGI2 in the kidney and stomach and inhibition of COX-1 is considered the likely cause of NSAID-related toxicity.[13] While decreased synthesis of PGs is the useful action of NSAIDs at the site of inflammation, PG production also declines in tissues where these locally-acting hormones form an integral part of normal regulatory mechanisms such as protecting the gastric mucosa and regulating the tone of arteriolar vessel wall.[14] The effects on the latter may be particularly relevant in patients with high blood pressure.

NSAIDS - HYPERTENSIVE EFFECTS

In several randomized trials some NSAIDs have been reported to elevate blood pressure in normotensive subjects and in both treated and non-treated hypertensive patients. NSAIDs may increase blood pressure by the following specific and non-specific mechanisms, which may partially depend on the underlying conditions.

1. Administration of NSAIDs may produce an acute increase in vascular resistance in renal and extra-renal vascular beds in both normotensive[15] and hypertensive[16] subjects. Postulated mechanisms underlying these effects include the decreased formation of vasodilating PGs such as PGE2 and prostacyclin and enhanced release of noradrenaline from nerves along with an increase in the vascular sensitivity to circulating vasoconstrictor substances.[17]
2. Some NSAIDs cause sodium retention in normal volunteers and in patients with hypertension and renal diseases[18,19] by reducing filtered sodium and increasing proximal tubular reabsorbtion. Inhibition of intra-renal rather than systemic cyclo-oxygenase activity seems to be the more likely mechanism. Also, some NSAIDs, such as indomethacin, may cause increased synthesis of endothelin-1 (ET-1).[20]
3. NSAIDs could modify blood pressure regulation through a variety of renal mechanisms.[21] When the renin-angiotensin system is activated, angiotensin constricts both preglomerular and post-glomerular vessels. However, PGs oppose the action of angiotensin on preglomerular but not post-glomerular vessels and prevent a drop in intraglomerular pressure, thereby maintaining glomerular filteration. Under these conditions, interference with PG synthesis by NSAIDs leads to unopposed constriction of preglomerular vessels by angiotensin-II and, hence, a potential drop in intraglomerular pressure. Clinically this carries the risk of renal failure. NSAIDs are also associated with renal injury causing acute interstitial nephritis or acute tubular necrosis that may lead to the development of hypertension[22] or, if already present, it may become difficult to control.

Among the NSAIDs, various studies have reported that sulindac, aspirin and ketoprofen have little effect on blood pressure control in hypertensive patients receiving treatment. Sulindac is considered a "renal PG sparing agent" as the kidney metabolizes the active sulphide of sulindac to an inactive compound.[23] Sulindac has been found to antagonize the blood pressure lowering effect of antihypertensive drugs less than other NSAIDs such as indomethacin, piroxicam and naproxen with which it has been compared in several randomized, controlled trials. Nabemutone, etodolac[23] and meloxicam,[24] and the newly released celecoxib and rofecoxib antagonize COX-2 more than COX-1 and thus may not have the adverse effects associated with other NSAIDs.

OTHER ANALGESICS AND BLOOD PRESSURE

As shown in Table 1, simple analgesics like acetaminophen, propxyphene, opioid analgesics (codeine, hydrocodone, morphine etc.), narcotic analgesics (eg: tramadol) and non-acetylated salicylates can be used safely in hypertensive patients on treatment who also require medications for relief of pain. These agents do not alter PG synthesis and therefore should not attenuate antihypertensive efficacy. After critical evaluation of the indications for NSAID treatment, well tolerated and effective alternatives including simple analgesics, physical therapy, weight reduction, intra-articular injection and joint surgery may be preferred.

NSAIDS AND ANTI-HYPERTENSIVE THERAPY

It has been observed that following antihypertensive therapy with certain drugs vasodilatory PGs (PGE2 & PGI2) synthesis is increased[25] in response to reflex-mediated pressor mechanisms such as sympathetic tone and angiotensin. Antihypertensive agents whose mechanism of action involves a counter-regulatory increase in vasodilatory PGs are thiazide and loop diuretics, beta-adrenergic blockers, alpha-adrenergic blockers and ACE-inhibitors. Hypertensive patients taking these antihypertensive drugs could be, therefore, expected to have the highest plasma level of vasodilatory PGs. PG inhibition by NSAIDs in such patients may be associated with the greatest increase in blood pressure as compared to individuals not taking these

antihypertensive medication. Effects of NSAIDs on commonly used antihypertensives are as follows:

Diuretics - NSAIDs may produce sodium retention and reduce the sodium excretion evoked by diuretics. Indomethacin has been shown to reduce the diuretic effect of hydrochlorothiazide. Piroxicam, naproxen and ibuprofen have also been shown to increase blood pressure in patients receiving hydrochlorothiazide, however, sulindac has not been implicated in this interaction.[26-28]

Beta-blockers - NSAIDs also antagonize the effects of beta-blockers. The interaction between beta-blockers and NSAIDs has been studied in patients with controlled hypertension. Indomethacin has been shown to cause a significant increase in systolic and diastolic blood pressures in patients receiving labetolol. Similarly, naproxen increased systolic blood pressure in patients taking atenolol.[28]

ACE-Inhibitors - It appears that NSAIDs are able to blunt the antihypertensive effect of ACE I in patients with low activity of renin-angiotensin system. It has been observed that the effect of captopril can be modified by NSAIDs, thus supporting the idea that ACE-Inhibitors' antihypertensive action may be PG-mediated in addition to their main effect of blocking the formation of angiotensin. Indomethacin was shown to increase mean arterial pressure by approximately 5.5 mm Hg in enalapril-treated hypertensive patients.[29]

Calcium Channel Blockers - The effects of calcium channel blockers are least affected by NSAIDs. This is probably because their action is apparently unrelated to renal or extrarenal production of PGs.[30-32]

Peripheral Alpha 1 Blockers - These drugs act at the post-synaptic alpha 1 receptor, leading to both arteriolar and venous dilation. Prazosin has been shown to enhance the synthesis of PGE2 and PGI2. Through PG inhibition, NSAIDs increase vascular resistance and may attenuate the vasodilatory effect of peripheral alpha 1 blockers.[33]

CLINICAL SIGNIFICANCE OF NSAIDS USE IN HYPERTENSIVE PATIENTS

A meta-analysis showed that in the normotensive patients, NSAIDs induced virtually no change in blood pressure. After adjustment for dietary salt intake, increase in mean arterial pressure for indomethacin and naproxen was about 3.7 mm Hg. The effects of sulindac and aspirin were not statistically different from placebo. The increase induced by indomethacin and naproxen may be large enough to be clinically significant in some hypertensive patients and may thus increase the risk of complications or require intensification of antihypertensive therapy to control blood pressure.[34]

Table 1. Effects of Anolgesics an blaad pressure

NSAIDs with greater effects an blood pressure	NSAIDs with least effects an blaad pressure	Analgesics with no effects an blaad pressure
Indamethacin (Indacin)	Sulindac (Clinoril)	Acetaminophen (Tylenal)
Napraxen (Noprosyn)	Nabumetane (Relofen)	Prapaxyphene (Darvan)
Piroxicom (Feldene)	Etodoloc (Lodine)	Opiod analgesics
Phenylbutazane	Melaxicam	Narcotic anolgesics
Ibuprafen (Matrin)	Aspirin	Nan-acetyloted Solicylates
	Ketoprofen (Orudis)	
	Celecoxib (Celebrex)	
	Rofecaxib (Viaxx)	

In a second study, meta-analysis showed that although all NSAIDs increased supine mean blood pressure, piroxicam, indomethacin and ibuprofen produced greater increases of which only piroxicam had a stastically significant increase of 6.2 mm Hg. Aspirin, sulindac and flubiprofen caused the smallest elevation in supine mean blood pressure. They also concluded that NSAIDs antagonized the antihypertensive effect of betablockers (blood pressure elevation, 6.2 mm Hg) more than that of vasodilators and diuretics. This finding could be partially explained by varying effects of these antihypertensives on vasodilatoly PG synthesis.[35]

EPIDEMIOLOGIC SIGNIFICANCE

The results of both the meta-analyses predominantly in younger adults were similar, suggesting that NSAIDs elevate mean blood pressure by approximately 5 mm Hg usually over a period of several weeks. A 5 to 6 mm Hg increase in diastolic blood pressure maintained over a few years may be associated with a 67% increase in total stroke occurrence and a 15% increase in coronary heart disease events.[36] The latter may be higher if the difference in diastolic blood pressure is maintained longer (approximately 10 years). Importantly, these effects are apparent in both normotensive as well as hypertensive individuals. It is quite likely that these data apply to patients using NSAIDs who experience blood pressure elevation as a result.

Both of the meta-analyses studied the effects of NSAIDs on people younger than 65 years, however, the elderly people constitute a large segment of population who take NSAIDs as well as antihyperten-

sive medication concurrently. Hence, any adverse influence of NSAIDs on blood pressure control and any antagonistic drug interaction between NSAIDs and antihypertensive medication will have the greatest clinical significance in the elderly because of the substantial numbers of elderly individuals who are at risk.[37] Another sub-group at increased risk of the pressor effect of NSAIDs include patients with salt-sensitive hypertension in whom indomethacin appears to have a significant effect on blood pressure.[38]

NSAID usage among the elderly has been proposed as an independent risk factor for the development of hypertension. In a case-controlled study, the odds ratio escalated with increasing the daily NSAID dose to 1.82 for high dose NSAID-user elderly. The authors also found that the risk for the initiation of antihypertensive therapy was greater for patients with duration of NSAID use of 30 to 90 days.[39] Prospective placebo-controlled studies are needed for a more rigorous examination of this issue.

CONCLUSIONS

In conclusion, the blood pressure should be monitored more closely during the period of NSAID therapy, especially in the elderly and in salt-sensitive hypertensives, and the dose of antihypertensive medications may have to be increased for better control of blood pressure.

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Recognition of Chronic Carbon Monoxide Poisoning

Lynda Knobeloch, PhD, and Russhawn Jackson, PhD

ABSTRACT

Chronic exposure to low levels of carbon monoxide can cause vague symptoms that are easily mistaken for other common illnesses. During the past 5 years, three families have contacted the Wisconsin Division of Public Health to report illnesses that may have been caused by chronic exposure to carbon monoxide. Members of these families were diagnosed with a variety of conditions including chronic fatigue syndrome, depression and influenza. Carbon monoxide exposure was not suspected as a cause of these illnesses until heating contractors discovered that gas appliances in these families' homes were not properly vented. These cases serve as reminders that carbon monoxide exposure should be considered in the differential diagnosis of patients who present with chronic symptoms of headache, fatigue, dizziness, nausea and mental confusion — especially when these symptoms onset during the winter heating season.

INTRODUCTION

Each year in the United States, more than 200 deaths and approximately 5000 injuries are caused by residential exposure to carbon monoxide.[1] While acute carbon monoxide poisoning is readily diagnosed, illnesses that can be caused by long-term exposure to lower concentrations of this gas are much more difficult to recognize.[2,3] Common symptoms of exposure to low levels of carbon monoxide include headache, fatigue, dizziness, shortness of breath, nausea and mental confusion. If the exposure is ongoing, these symptoms can become chronic and may lead to more serious health problems.

During the past 5 years, the Wisconsin Division of Public Health has been contacted by three individuals who described chronic health problems that were apparently caused by long-term exposure to carbon monoxide. Their case histories are remarkably similar. Each reported long-term illnesses that were characterized by symptoms of headaches, weakness, fatigue, dizziness and nausea. One family member also experienced episodes of fainting. Women in two of the homes were diagnosed with chronic fatigue syndrome and one of them was referred to a psychotherapist for treatment of depression. A preschool-aged child in one of the homes was repeatedly diagnosed with "the flu" during the winter of her exposure. A child in another home was diagnosed with a developmental speech disorder. Carbon monoxide exposure was not considered as a possible cause of any of these illnesses until heating contractors identified serious problems with the ventilation systems of gas appliances in each of these families' homes. These cases were reported to the Division of Public Health by residents of Bayfield, Dane and Milwaukee Counties. Because the ventilation problems in the affected homes were corrected before these incidents were reported, carbon monoxide levels could not be verified. Nonetheless, our review of these cases found them credible. Case information is presented in an effort to alert health care professionals regarding chronic health problems that can result from prolonged exposure to sub-lethal levels of carbon monoxide.

CASE REPORTS

Case I: In October 1995, a Bayfield County man contacted the Wisconsin Division of Public Health to ask about the long-term health effects of carbon monoxide exposure. He reported that a heating contractor had recently discovered that a low section in the exhaust system for his gas furnace was filled with water from condensation. The furnace had been installed during the fall of 1994 and the resident expressed concern that the obstruction might have allowed carbon monoxide and other combustion byproducts to accumulate in his home.

During the winter of 1994–1995, his wife and 14-year-old son experienced chronic symptoms of headache, nausea, mental confusion and fatigue. His wife fainted on several occasions while bathing in a heated bathroom, but recovered spontaneously

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after being moved to an unheated bedroom. Her condition, which was initially diagnosed as chronic fatigue syndrome, gradually improved after the ventilation problem was corrected. A 2-year old grandson, who lived with the couple that winter, was diagnosed with a developmental speech disorder called aphasia during the summer of 1995. The man who reported this case recalled having headaches, but felt that he was affected less than other family members because he worked outside the home several hours a day.

Case 2: In November 1998, a 56-year-old Milwaukee County resident contacted the Division of Public Health to request information about exposure to carbon monoxide. When asked about her exposure she explained that a contractor, who was installing a new water heater in her home, found that her gas furnace and water heater were not properly vented to the interior of the chimney. Instead, the exhaust from these appliances was vented to a dead space between the walls of her home, which was constructed in 1955.

This woman, who had lived alone in the home since 1970, recalled having episodes of dizziness, nausea and fatigue that began in the mid-1970's. Her condition deteriorated over the next 2 decades and by 1994, she was too debilitated to continue her work as a medical technologist. She retired that year at the age of 52.

Between 1979 and 1998 this woman was evaluated by several different physicians. She was diagnosed with a variety of medical conditions including a suspected middle ear infection, depression, migraine headaches, and chronic fatigue syndrome. One month after the ventilation problem in her home was corrected, she reported that her headaches were less severe, however she continued to experience symptoms of dizziness and nausea.

Case 3: In April 1999, a Dane County resident reported that a newly-installed gas fireplace had malfunctioned over the winter heating season, releasing soot and combustion byproducts into the apartment she shared with her daughter. This problem was identified after she noticed soot stains behind holiday decorations that had been displayed on the fireplace mantle. In response to her concerns, the fireplace installer inspected the unit. After operating the fireplace for 15 minutes, he measured a carbon monoxide level of 112 parts per million (ppm) in the apartment. Additional investigations were conducted by the local fire department and municipal building inspector. Both of these inspectors noted soot stains throughout the apartment and recommended that the fireplace be replaced.

Table 1. Symptoms caused by carbon monoxide[4]

Carboxyhemoglobin level (% HgB)	Signs and Symptoms
<5%	None
5-10%	May exacerbate angina in patients with heart disease
10-20%	Mild headache, breathlessness on exertion
20-30%	Throbbing headache, irritability, mental changes, fatigue
30-40%	Severe headache, weakness, nausea, dizziness, visual problems, confusion
40-50%	Increased confusion, hallucinations, severe ataxia, rapid breathing
50-60%	Syncope or coma with convulsions, tachycardia with weak pulse
60-70%	Deep coma, incontinence of urine and feces
70-80%	Profound coma, depressed respiration, absent reflexes
>80%	Rapid death from respiratory arrest

Between September and January, the fireplace was in use approximately 12 hours a day. The adult resident experienced headaches, dizziness, and extreme exhaustion, which she attributed to a viral infection. Her 2.5-year-old daughter was lethargic and irritable, and vomited on several occasions. During the period of her exposure, this child had eight clinic visits and was examined by three different pediatricians. Her symptoms were repeatedly attributed to "the flu."

DISCUSSION

Carbon monoxide is an extremely hazardous gas that has no warning taste or odor. It is produced by incomplete combustion of organic fuels such as wood, gasoline, natural gas, coal, charcoal and fuel oil. Carbon monoxide binds to hemoglobin to form carboxyhemoglobin. Because carboxyhemoglobin is unable to transport oxygen, the condition causes a variety of physiological effects that are secondary to hypoxia. The tissues most affected are those with the highest oxygen demand, such as the brain, heart, and skeletal muscle. In acute poisonings, the severity of symptoms is related to the level of carboxyhemoglobin in the blood (see Table 1).

Pregnant women and people who have pulmonary or cardiovascular diseases are more susceptible than healthy individuals. Children may also be at higher risk, however, few studies have been done to evaluate this. The fetus is extremely susceptible to the effects of CO and the gas readily crosses the placenta. Prenatal exposures can cause congenital malformations, low birth weight, and permanent brain dam-

age, resulting in mental retardation, hypotonia, areflexia, basal ganglia damage, microcephaly, and seizure disorders.[5,6] Fetal deaths have also been reported following non-lethal maternal poisonings.[7,8,9]

A single exposure to carbon monoxide can have long-term consequences. "Post CO syndrome" is characterized by headaches, nausea and weakness. This condition can present up to 40 days after an acute CO exposure and last for 2 to 3 weeks. In rare cases, severe delayed neurotoxicity following a single acute poisoning can cause permanent disability.[10,11]

The incidence of delayed effects varies depending on the severity of the initial exposure. A large study conducted by Choi found that only 1% of patients whose CO exposures were not severe enough to cause coma developed delayed symptoms of neurological damage.[12] This rate increased to 30% among patients whose CO-induced comas lasted 6 days or longer. Delayed symptoms included mental deterioration, personality changes, mutism, severe memory loss, fecal and urinary incontinence, tremor, visual loss, movement disorders, peripheral neuropathy, Tourette's syndrome and Parkinsonian syndrome. Neurological changes include bilateral basal ganglia lesions, diffuse white matter changes including demyelination, and cerebellar swelling with hydrocephalus.

The effects of long-term exposure to lower levels of CO are not well documented in the literature. Case 2 in this report describes an exposure that may have occurred over a period of more than 20 years. During that time, the occupant of this home experienced progressive symptoms of headache, dizziness, nausea and exhaustion. Whether CO exposure was the sole cause of her illness is uncertain. Local public health officials were skeptical that her illness could have been caused by CO because her condition did not improve during the summer months. However, the length of time needed to recover from long-term exposure to CO is not well known and may vary considerably depending on the severity of the exposure and the individual's general health status. In addition, since the ventilation problem in this home involved the water heater, as well as the furnace, this resident's exposure may have continued during the summer months — especially if the windows and doors were kept closed because of security concerns or the use of an air conditioner.

The American Conference of Government Industrial Hygienists has developed a workplace standard of 25 ppm for carbon monoxide.[13] This standard is intended to protect healthy workers who are exposed 8 hours a day, 5 days a week. Federal air quality standards require that CO levels in outdoor air be less than 9 ppm in residential areas (8-hour average).[14] Air quality standards have not been established for homes. However, Underwriters Laboratory requires residential CO detectors to sound an 85 decibel alarm within 90 minutes if the CO concentration is at 100 ppm, within 35 minutes at 200 ppm, and 15 minutes at 400 ppm.

The cases described in this article serve as reminders of the potential health threat posed by carbon monoxide, even when it is present at sub-lethal levels. Residential sources of this gas include automotive exhaust from attached garages and improperly-vented stoves, fireplaces, furnaces, clothes dryers and water heaters. Virtually all homes are at risk. Although there is no legal requirement that homes or apartments be equipped with CO detectors, health care providers should encourage patients to buy at least one detector and install it in the sleeping area of their home.

Health care professionals should also be aware of the symptoms of CO exposure and consider CO in their differential diagnosis of patients who present with vague flu-like symptoms. Triage should include questions about whether the patient's symptoms seem to improve or worsen in different environments, whether other members of their household – including pets – have been ill, and about potential sources of CO in the home. The diagnosis is confirmed by a blood test for carboxyhemoglobin. Pulse oximetry is not useful since oxyhemoglobin and carboxyhemoglobin are absorbed at the same wavelength.[15] Non-exposed individuals typically have carboxyhemoglobin levels below 5%, however, the level can be as high as 10% in an active smoker. A blood level greater than 5% in a symptomatic patient may indicate chronic CO toxicity and requires further evaluation.

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Non-Contrast-Enhanced Helical Computed Tomography for the Evaluation of Patients with Acute Flank Pain

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ABSTRACT

The purpose of this study was to determine the sensitivity, specificity, and positive predictive value of non-contrast-enhanced helical CT as the primary imaging modality for the evaluation of patients with acute flank pain at the University of Wisconsin. A retrospective review of 163 computed tomography (CT) examinations, dating from 3/4/97 to 3/25/98, was performed. Statistical calculations were performed using only clinically -confirmed data. Sixty-five true positives, 3 false positives, 64 true negatives, and 1 false negative yield a sensitivity of 98.5%, a specificity of 95.5%, and a positive predictive value of 95.6%. A timely diagnosis of non-genitourinary system pathology occurred in 7% of cases, improving the overall efficacy of this modality for the evaluation of flank pain. The University of Wisconsin experience confirms the accuracy and efficacy of using non-contrast-enhanced helical CT in the diagnosis of a suspected obstructing ureteral calculus. The highly accurate and timely diagnosis of an obstructing ureteral calculus, or of extraurinary tract pathology, establishes non-contrast-enhanced helical CT as the diagnostic study of choice for the evaluation of the patient with acute flank pain.

INTRODUCTION

Acute flank pain is one of the more common reasons for admission to emergency departments in the United States. The differential diagnosis in these cases can be quite broad, but in the appropriate clinical setting acute ureteral obstruction is frequently diagnosed. Ureteral obstruction can be due to a urinary calculus or compression by an intrinsic or adjacent mass. Other etiologies of acute flank pain that may mimic ureteral obstruction include appendicitis, diverticulitis, pancreatitis, torsion of pelvic masses, biliary obstruction, cholecystitis, bowel obstruction, intussusception, aortic dissection, and expanding or ruptured abdominal aortic aneurysm.[1,2] Given this broad differential diagnosis for acute flank pain, it may be difficult to make an accurate clinical diagnosis, and radiographic studies are generally necessary to confirm or suggest an appropriate diagnosis.

The ideal test for evaluating acute flank pain would be safe, noninvasive, sensitive and specific, and provide the clinician with the answers to the following questions:

1. Is ureteral obstruction present?
2. If obstruction is present, what is the level and precise cause?
3. If present, what are the location, size and composition of the ureteral calculi?
4. If obstruction is not present, is there another cause of acute flank pain?

In the past, a number of different imaging techniques have been used to evaluate patients with acute flank pain. These include plain radiographs of the abdomen and pelvis, intravenous urography (IVU), sonography, and sonography combined with plain radiography.[1-11] All of these methods have been shown to have limitations or disadvantages. More recently, investigators have reported on the use of non-contrast-enhanced helical computed tomography (CT) in the evaluation of acute flank pain.[1,2,5-8,11-16]

The purpose of this study was to determine the sensitivity, specificity, and positive predictive value of non-contrast-enhanced helical CT as the primary imaging modality for the evaluation of patients with acute flank pain at the University of Wisconsin.

MATERIALS AND METHODS

A retrospective review of 163 computed tomography (CT) examinations, dating from 3/4/97 to 3/25/98, was performed. The population was comprised of 104 males and 59 females, with ages ranging from 12 to 94 years. CT reports were reviewed of patients who had originally presented to the emergency department with signs and symptoms leading to the clinical suspicion of an obstructing renal calculus. Presenting signs and symptoms included acute flank or abdominal pain, hematuria, frequency, urgency, fever or chills.

A standardized scanning protocol was used.

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Localizing scout views, in the anteroposterior and lateral projections, extended from the diaphragms through the iliac crests. Non-contrast-enhanced helical CT was performed, at 5 mm collimation with a pitch of 1.4:1, reconstructed at 5 mm increments, from the top of the kidneys through the base of the bladder.

RESULTS

Ninety-eight studies were interpreted as positive for a ureteral calculus, or a calculus recently passed into the bladder. Imaging findings used to determine the diagnosis include hydroureter, hydronephrosis, perinephric or periureteral stranding or fluid, nephromegaly, and the tissue-rim sign (a circumferential rim of soft-tissue attenuation, surrounding a ureteral stone, which is felt to represent edema of the ureteral wall) [Figures 1-5].

Intravenous urography, nephroureteroscopy, lithotripsy, or spontaneous passage confirmed the presence of calculi in 65 of the 98 studies interpreted as positive for nephrolithiasis. Thirty studies did not have appropriately documented follow-up and thus could not be clinically confirmed. These cases were excluded from statistical calculations.

Sixty-five studies were interpreted as negative for a current or recently passed calculus. Of these 65, eleven studies were read as positive for other acute diseases. These diagnoses, which were later confirmed by ultrasound or exploratory laparotomy, include appendicitis (n=3), and the following conditions diagnosed in single cases: endometriosis, hemorrhagic ovarian cyst, torsed ovarian cyst, neobladder leak, metastases with renal vein thrombosis, liver abscess, cholecystitis, right ovarian remnant after total abdominal hysterectomy.

There were three false positive interpretations. The correct diagnoses, congenital ureteropelvic junction (UPJ) obstruction, calculus in a bladder diverticulum, and an arterial calcification, were revealed by intravenous urography or retrograde ureteroscopy. One false negative interpretation occurred when a calcification was felt to represent a phlebolith, but was discovered to be a left ureterovesical junction calculus by intravenous urography and cystoureteroscopy.

Statistical calculations were performed using confirmed data only. Sixty-five true positives, 3 false positives, 65 true negatives, and 1 false negative yield a sensitivity of 98.5%, with a corresponding 95% confidence interval of 95.6-100%. The data yield a specificity of 95.6%, with a corresponding 95% confidence interval of 90.7-100%, and a positive predictive value of 95.6%. A timely diagnosis of non-genitourinary system pathology occurred in 7% of cases, improving the overall efficacy of this modality for the evaluation of flank pain.

Figure 1. Axial non-contrast image of the mid-abdomen, in a patient with right flank pain.

A right proximal ureteral calculus is identified (arrow). Note the associated rim of thickened ureter - "the tissue rim sign." This patient's scan also demonstrated bilateral nephrolithiasis, right hydronephrosis and hydroureter, and right perinephric stranding.

DISCUSSION

A number of different imaging modalities have been used in the evaluation of patients presenting with acute flank pain. These methods were employed because they were the best tests available at the time, and because it was believed that they were accurate in identifying ureteral calculi. Subsequent investigations have shown that these modalities are neither as accurate nor as effective as non-contrast-enhanced helical CT in the detection of renal calculi.[1,3-6,11,15]

Plain Abdominal Radiography

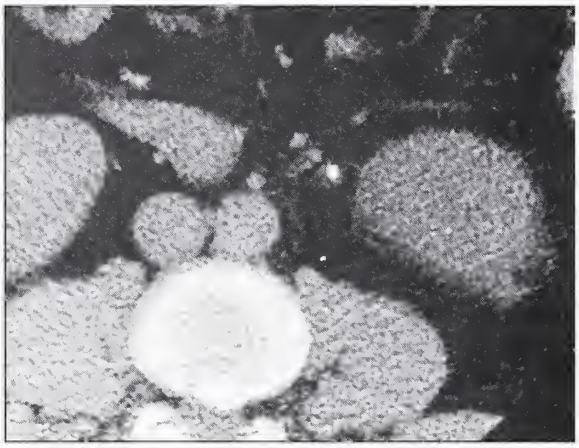
Plain radiographs of the abdomen and pelvis are often ordered during the initial evaluation of patients with acute flank pain. However, Roth et al. and Mutgi et al. respectively reported sensitivities of only 62% and 58% in the detection of urinary calculi by plain radiographs alone.[3,4]

Intravenous Urography

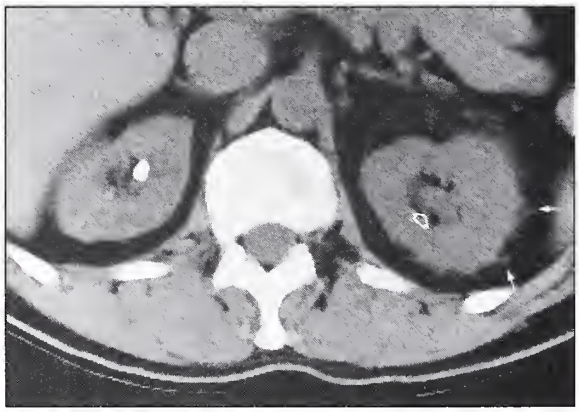
Intravenous urography (IVU) has long been the modality favored by urologists for the radiographic evaluation of patients in whom renal calculi are suspected. IVU can accurately verify the presence or absence of ureteral obstruction, provide some functional information, and delineate anatomic anomalies of the collecting system and ureters.[2,7]

However, there are several disadvantages and limitations to IVU.[1,2,7] The examination requires the use of an iodinated contrast agent, which carries with it the small but real risk of serious nephrotoxicity and adverse patient reaction. When the test is performed on an emergency basis and bowel preparation is not possible, the quality of the examination may be compromised. The test depends on the pre-injection images to identify calculi, where accurate localization

Figure 2. Axial non-contrast images of the mid-abdomen, in a patient with left flank pain.



2A: Note the obstructing left mid-ureteral calculus with an associated tissue rim sign.



2B: Additional supporting findings of left hydronephrosis (open arrow), and left perinephric stranding (small arrows) are also present. Right nephrolithiasis is also seen.

may be difficult. Non-radiopaque calculi may not be visualized by IVU. When high-grade obstruction is present, the examination can be lengthy, with the filming sequence taking several hours to complete. If the test is negative, IVU is rarely able to identify extraurinary tract pathology that may be responsible for the patient's symptoms.

Sonography Combined with Plain Abdominal Radiography

Some investigators have used the combination of sonography and plain abdominal radiography to evaluate patients suspected of having an obstructing ureteral calculus. Sonography is employed to detect dilatation of the collecting system, while plain radiographs are used to detect calculi and establish their location and size. In a study of 34 patients with suspected ureteral calculi, Sommer et al. found that the combination of sonography and plain abdominal radiography, which had been their standard examination for patients with suspected renal colic, was less sensitive than non-contrast-enhanced helical CT.[11] Of 18 CT examinations that were interpreted as positive for the presence of ureteral calculi, 16 were determined to be true positives on the basis of later-documented passage of a calculus. Thirteen of the 16 true positive cases were also interpreted as positive for renal calculi using the combination of abdominal plain film and renal sonography.

ACCURACY OF NON-CONTRAST-ENHANCED HELICAL CT

Our results agree with a number of recent studies that have reported the accuracy of non-contrast-enhanced helical CT in detecting renal calculi and obstructing ureteral calculi, and in detecting extra-urinary causes of flank pain. In a study comprising 210 patients with acute flank pain, Smith et al. reported that non-contrast-enhanced CT had a sensitivity of 97%, a specificity of 96%, an overall accuracy of 97%, a positive predictive value of 96%, and a negative predictive value of 97% for determining the presence or absence of a ureteral calculus.[12] Subsequently, those authors reported a sensitivity of 95%, a specificity of 98%, and an accuracy of 97%.[2] CT is highly accurate both in establishing and in excluding stone disease.

As we have shown, CT can be very useful in causes of flank pain. In the study by Smith et al., the authors found 31 of the 210 patients had conditions unrelated to stone disease, including appendicitis, diverticulitis, adnexal masses, and common bile duct stones.[12]

Fielding et al. found that of those patients with ureteral obstruction, the presence of a ureteral calculus on CT scan had a positive predictive value of 94% and the absence of a ureteral calculus had a negative predictive value of 83% for renal colic.[14] In a separate study comprising 51 patients with documented ureteral calculi, CT demonstrated ureteral obstruction in 50 patients to yield a 98% sensitivity.[15] In all 38 patients without ureteral calculi, CT was negative for ureteral obstruction, yielding a 100% specificity. The positive predictive value of CT for patients with documented ureteral obstruction was 100% and the negative predictive value without findings of ureteral obstruction was 97%.

ADVANTAGES OF NON-CONTRAST-ENHANCED HELICAL CT

Non-contrast-enhanced helical CT is a relatively safe, rapid, and highly accurate diagnostic modality that has a number of advantages over other imaging studies in the evaluation of patients with acute flank pain. Compared with plain radiographs, non-

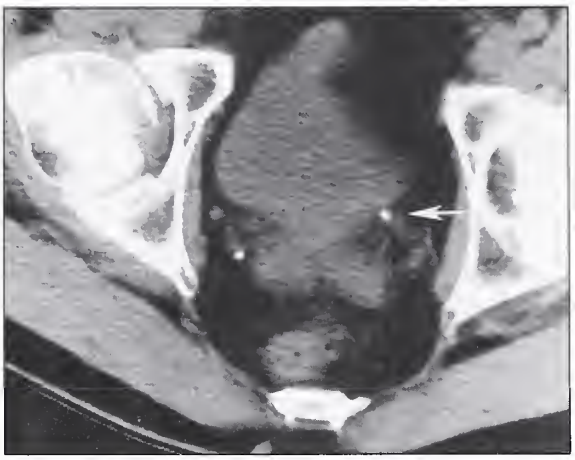
contrast-enhanced helical CT scans provide significantly better soft-tissue contrast resolution and spatial resolution, and can resolve much smaller calcifications. CT is able to directly demonstrate virtually all calculi within the renal collecting system, regardless of composition, since calculi have significantly higher CT attenuation than surrounding soft tissue.[1,6] CT has been shown to be as effective as IVU in determining the presence or absence of urinary tract obstruction in patients with acute flank pain. CT is more sensitive than IVU in depicting obstructing ureteral calculi.[1,14,15] Smith et al. found that 12 of 20 patients demonstrated evidence of obstruction on both IVU and CT.[1] Of these 12 patients, five demonstrated a ureteral calculus on both IVU and CT. In six patients, the calculus could only be seen on the CT scan. There were no cases in which the findings for obstruction differed between IVU and CT.

CT permits precise determination of the size and location of calculi, two factors that are extremely important in patient management.[2,6] Because approximately 80% of calculi 4 mm or smaller in size pass spontaneously, patients with small, nonobstructing calculi should be provided such an opportunity. Such patients can be treated conservatively with analgesics and hydration. For patients with larger calculi, interventional therapy may be necessary. Accurate localization helps in deciding on appropriate treatment, e.g. extracorporeal shock wave lithotripsy (ESWL) for proximal calculi or ureteroscopic intervention for distal ureteral or ureterovesical junction calculi.

A distinct advantage of non-contrast-enhanced CT is the short examination time. The average study takes less than 15 minutes to perform, which is substantially quicker than IVU. No pre-test preparation is required of patients undergoing CT. Because no oral or intravenous contrast agent is used, the patient is not exposed to the discomfort and potential risks associated with contrast media, and the examination does not preclude or interfere with the performance of any subsequent imaging studies.

If no calculi are visualized, CT can suggest the spontaneous passage of a calculus when secondary signs of recent ureteral obstruction are present on the scan. If there is no evidence of a ureteral calculus, CT is also highly accurate in the diagnosis of extraurinary causes of acute flank pain. In most cases, the use of complementary imaging studies is not necessary. If a definitive diagnosis cannot be made based on non-contrast-enhanced CT findings, the patient can be immediately evaluated by converting to a contrast-enhanced CT scan.

Figure 3. Axial non-cantrast images of the pelvis and mid-abdomen, in a patient with left flank pain.



3A. An obstructing calculus at the left ureterovesical junctian is seen (arraw). The calcification in the right pelvis was vascular.

3B: Marked left hydranephrosis (open arrow), and left perinephric stranding and fluid (small arraws) help confirm the diagnosis of obstructing left WJ calculus. Also note the bilateral nephrolithiasis.

CONCLUSION

The University of Wisconsin experience confirms the accuracy and efficacy of using non-contrast-enhanced helical CT in the diagnosis of a suspected obstructing ureteral calculus. CT also has the added benefit of being able to detect extraurinary pathology in a timely manner. Our emergency department physicians cite the timeliness of CT as one of its greatest benefits, since the quicker a diagnosis can be made, the sooner a disposition can be determined for the patient. Hence, both the amount of time spent waiting by the patient, and the turnaround time in the emergency department, can be significantly shorter. The highly accurate and timely diagnosis of an obstructing renal calculus, or of extraurinary tract pathology,

establishes non-contrast-enhanced helical CT as the diagnostic radiology study of choice for the evaluation of the patient with acute flank pain.

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Age and Gender Differences in Suicide Trends, Wisconsin and the United States, 1980–1994

Linda H. Chaudron, MD, and Patrick Remington, MD, MPH

ABSTRACT

A review of suicide rates in Wisconsin and the United States reveals that despite a constant suicide rate between 1980 and 1994, various trends are occurring among different genders, races and age groups. Five-year averages between 1980-84 and 1990-94 show increasing disparity between men's and women's rates. In Wisconsin, the male death rate in 1990-94 was 4.7 times greater than that of women as compared to 3.7 times greater in 1980-84. Suicide rates for Wisconsin women decreased 20% while rates for US women decreased 16%. Whites have greater suicide rates than blacks, but the rates among blacks are increasing. Suicide rates are also increasing among ages 10-19 and over 75. To understand and facilitate change, we must study and learn from groups whose rates are decreasing. By recognizing differences and changes in suicide rates among various groups, those at high risk may be identified and targeted for education, detection and treatment of mental illness.

INTRODUCTION

Suicide is a significant health concern for many individuals as well as society as a whole. It is clearly a public health problem given its rank as the ninth leading cause of death in the United States[1] and in Wisconsin.[2] Suicide causes extreme pain and suffering to surviving family and friends. For the individual who has committed suicide, there is often a considerable amount of productive life lost. Since nearly all suicides are committed by people with a diagnosis of mental illness,[3] and most mental illnesses are treatable, it is plausible that many suicides could be prevented with appropriate detection of mental illnesses and intervention.

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Despite advances in psychopharmacology and treatment of mental illness, especially depression, the rates of suicide in the United States and Wisconsin have consistently been approximately 12 deaths per 100,000 people for the years 1980 through 1994. Differences in rates have been described among specific age groups, races and genders. Men, across all age groups, have a higher rate of suicide than women. In general, men have been reported to have a more than three times greater rate of suicide than women.[3] Whites have a rate of suicide that is twice that of blacks, but rates among blacks have been increasing.[3] The rates of suicide among adolescents and young adults[4,5] as well as the elderly[6] have been increasing, particularly among men. Conversely, between 1960 and 1980, reductions in the overall rates in age groups 45-54 and 75-84 have been reported.[4,5]

The purpose of this study is to explore the trends in suicide rates over time among different age groups, genders and races in the United States and in Wisconsin between 1980 and 1994. This information will help to direct mental health education, detection and services toward the appropriate high risk groups. It will guide clinicians to evaluate mental illness more seriously in certain populations which previously may have been perceived to be at low risk due to race, age, and/or gender.

METHODS

Data on suicide rates (ICD-9 E950-E959), for ages 1-85+, from 1980 to 1994 in the United States and Wisconsin were obtained from Center for Disease Control and Prevention (CDC). Suicide rates, number of deaths, gender, race and age specific information were obtained from the WONDER program, via an on-line electronic link to the CDC's data library.

To account for the confounding of age, all rates were adjusted to the 1990 US standard population which includes both genders and all races. Age-specific rates were also obtained where appropriate.

To provide a more consistent estimate of the rate of suicide among different populations, the 5-year average annual mortality rates for 1980 to 1984 and 1990 to 1994 were calculated. A 5-year average is

Table 1. Suicide trends in Wisconsin, 1980–1994

	Total Number of Deaths		Average Rate/100,000*		Rate Difference	%Change	95% CI
	1980-84	1990-94	1980-84	1990-94			
GENDER							
Men	2,301	2,414	20.2	20.0	- 0.2	- 1%	(+5%, -3%)
Women	646	546	5.4	4.3	- 1.1	-20%	(-13%, -28%)
RACE							
White	2,857	2,831	13.0	12.4	- 0.6	- 4%	(-1%, - 8%)
Black	50	92	5.3	7.2	+ 2.0	+ 38%	(+6%, +66%)

*age adjusted to the 1990 US Census

used due to the relatively small number of suicide deaths in Wisconsin per year. Rate differences and percentage of change between 1980-84 and 1990-94 were calculated for each identified group. In order to assess the significance of the differences in rates, we calculated 95% confidence intervals (CIs) for each rate (where 95% CI = +/- 1.96*squareroot (p*(1-p)/n), where p = rate and n = population size).[7]

RESULTS

Gender

In Wisconsin and the United States, the number of male deaths from suicide far exceeds that of women across both time trends (Tables 1 and 2). The difference in death rates between men and women has increased both in Wisconsin and in the United States.

The male death rate in Wisconsin from 1980-84 was 3.7 times greater than that of women (20.2 vs. 5.4 deaths/100,000). For 1990-94 the men's suicide rate increased to 4.7 times greater than the women's rate (20.0 vs. 4.3 deaths/100,000). A similar trend is seen in the United States with the male rate for 1980-84 being 3.5 times greater than the female rate (19.4 vs. 5.6 deaths/100,000) and in 1990-94 being 4.3 times greater than female rate (20.3 vs. 4.7 deaths/100,000).

In Wisconsin, the suicide rates among men have remained essentially unchanged between 1980-84 and 1990-94 with rates at approximately 20 deaths per 100,000 (Table 1). The rates among men in the United States have increased approximately 5% from 19.4 to 20.3 deaths per 100,000 (Table 2). In Wisconsin women, there has been a 20% decline in suicide rates from 5.4 to 4.3 deaths per 100,000 (Table 1). Similarly, in the United States suicide rates among women have decreased 16% from 5.6 to 4.7 deaths per 100,000 (Table 2).

Race

In Wisconsin, as in the United States, whites continue to have suicide rates that are 1.5 to 2 times greater than that of blacks. However there is a trend of increasing suicide rates among blacks, both in Wisconsin and in the United States (Tables 1 and 2). The number of suicides among blacks per year is relatively small, but nonetheless the changing trend is important. In Wisconsin, while whites have shown a 4% decrease in suicide rates from 13.0 to 12.4 deaths per 100,000, blacks have shown a 38% increase with rates changing from 5.3 to 7.2 deaths per 100,000 (Table 1). Similar, but smaller, differences are seen in the United States with whites showing stable mortality rates at 13.3 deaths per 100,000, while blacks show a 14% increase in mortality rates from 6.1 to 7.0 deaths per 100,000 (Table 2).

Age

In the United States and Wisconsin, the general trend among men and women, both black and white, is a bimodal distribution with increasing rates of suicide among the young, ages 10-19 years old, and the elderly, especially those over 75 years of age. In contrast, rates are generally declining among women 20-74 years old (Figures 1 and 2).

Suicide rates are increasing among black men in the United States in all age groups except for the age group 55-64. The largest increases are for the young black men with increases of 136% (0.8 to 2.0 deaths per 100,000) and 134% (5.9 to 13.9 deaths per 100,000) for ages 10-14 and 15-19 respectively. A similar trend is seen in black men in Wisconsin. However, due to the small number of suicides, the data available cannot be used for comparison. United States white females in the 10 to14-year-old range show an almost double increase in rates (91%) from 0.5 to 1.0 per 100,000. Black women 85 years or older also show large increases (67%) with rates changing from 1.2 to 2.0 deaths per 100,000. In all of these groups, the number of deaths is relatively small.

United States women of all races show decreasing rates among ages 20-64 (Figure 2). They show a range of suicide rate reduction between 14% and 25%. White women show a range of rate reduction

Table 2. Suicide trends in the United States, 1980–1994

	Total Number of Deaths		Average Rate/1000,000*		Rate Difference	%Change	95% CI
	1980–84	1990–94	1980–84	1990–94			
GENDER							
Men	107,335	124,065	19.4	20.3	+0.9	+5%	(+4%, +5%)
Women	32,864	30,298	5.6	4.7	– 0.9	–16%	(–15%, –17%)
RACE							
White	129,507	139,639	13.3	13.3	– 0.0	- 4%	(–1%, -+1%)
Black	8,276	10,871	6.1	7.0	+ 0.9	+ 14%	(+13%, +17%)

*age adjusted to the 1990 US Census

between 19% and 25% while black women's rates declined between 7% and 15%. Wisconsin white women show trends similar to United States white women except for a decrease in rates among the age group 10-14. Due to the small numbers in this group (between 3 and 6 over five years) no inferences can be made. Similarly, because of the small numbers of suicide among black women in Wisconsin, no comparison for rates or trends is available.

DISCUSSION

Suicide remains a public health problem for men and women, young and old, black and white. No group remains unaffected. This study continues to show that men have greater rates of suicide than women, both in Wisconsin and in the United States. However, the disparity between the genders is increasing as the women's rates are dropping and the men's rates are unchanged or increasing. While most sources cite men as having a three times greater risk of committing suicide,[3] these data show that the rates for men are now more than four times that of women in the United States and are approaching five times that of women in Wisconsin. The difference in rates is even more pronounced when specific age groups are compared. For example, the difference in rates for white men over age 84 is almost 12 times that of white women of the same age group in the United States.

While this study describes trends in suicides in Wisconsin and the United States, it does not provide information about the reasons for these trends. There are several possible explanations which could be considered.

Perhaps because men have higher suicide rates compared with women, little attention has been paid to women's rates or the decreasing rates described in this study. The possible reasons for the decrease in women's suicide rates warrants some consideration. If it is due to the detection and treatment of mental disorders, particularly depression, then it would behoove the public and the medical profession to increase their awareness of mental illness and its treatment. The fact that the rates began to drop below 5 deaths per 100,000 in 1989 may give some support to the theory that the newer antidepressants may play a role in the increased treatment of depression and subsequent decrease in suicide. They are better tolerated and thus may increase compliance and the likelihood of remission. Another possible factor related to the newer, non-tricyclic antidepressants is their decreased lethality when taken in overdoses.[8] Overdose is a common method for attempted suicide in women and hence, less lethal medications may contribute to fewer deaths.

The decreasing rates among women, especially among women age 20-74, may also reflect the detection of depression in primary health care settings. Women use outpatient health care and mental health care services more than men,[1] hence increasing the likelihood of detection of depression. Similarly, if access and use of health care are contributing factors to the drop in suicide rates, it is not surprising that black women have less of a reduction in their suicide rates. Black women may not have the same access to health care as white women and hence may not be treated at all. It is known that the risk of suicide increases if psychiatric disorders remain untreated or inadequately treated.[4]

The increasing rates among adolescents, especially black males and the elderly are consistent with previous reports.[4,5,9,10] The increases among adolescents are reflected in the increase in suicide from the seventh to the fifth leading cause of death (1993) among ages 5-14 years while unfortunately remaining the third leading cause of death among ages 15-24.[1] One hypothesis for the increases among both adolescents and the elderly is the increased access to and use of firearms.[9,11,12,13] For adolescents, other factors such as drug and alcohol use and joblessness have been speculated to contribute to the increasing rates.[9] Among the elderly, in addition to the use of more lethal means,[11] the increase may also be attributed to factors such as isolation, chronic illness and disability which are known risk factors for suicide.

Figure 1. Wisconsin Men and Women: Age Specific Percent Changes in Suicide Rates 1980-84 to 1990-94
Data not shown *=less than 20 deaths

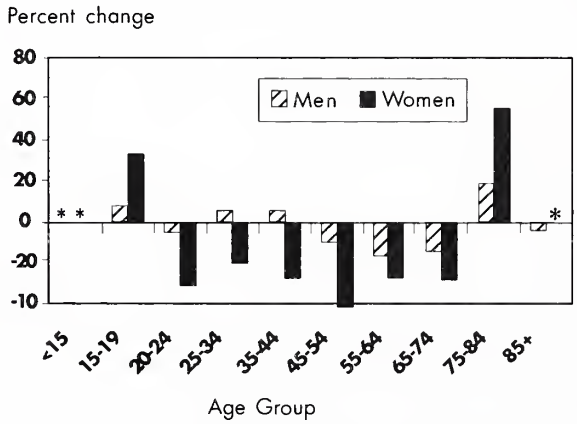
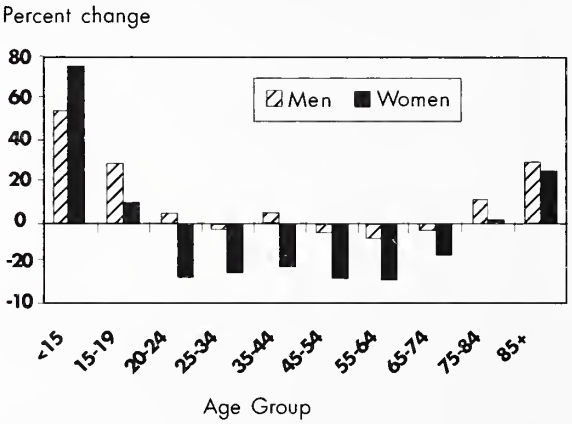


Figure 2. United States Men and Women: Age Specific Percent Changes in Suicide Rates 1980-84 to 1990-94



These factors may also contribute to the increase in suicide rates among elderly women, a group which has not been as well studied as elderly men. It may be that in both the elderly and young cohorts, there is less detection of depression due to more atypical depression or other mental illness which primary care physicians may be less likely to detect and treat. There are many other societal factors which are also likely to contribute to these various trends.

Limitations of this study include the possible incorrect number of suicides because of underestimation or overestimation due to misclassification of undetermined deaths, accidents and homicides. Racial, gender and age biases at the time of determination of the cause of death could contribute to some of the differences. Despite these limitations, there is no other good way to evaluate suicide data at this time.[5]

Suicide trends among specific age groups, genders, and races must continue to be evaluated so that the identification of changes among specific groups might enlighten the medical community as to potential changes in risk factors, detection and treatment of mental illness. Furthermore, research is needed to determine the causal factors of these changing trends.

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End-of-Life Care: An Explanation for Wisconsin Citizens' Attitudes Toward Legalization of Physician-Assisted Suicide

Jan Hare, PhD, and Denise Skinner, PhD

ABSTRACT

The debate concerning the legalization of physician-assisted suicide is ongoing in the United States. In Wisconsin specifically, a bill similar to Oregon's "Death With Dignity Act" was introduced in the 1993-94, 1995-96 and 1997-98 legislative sessions. This study sought to clarify the attitudes of Wisconsin citizens on this topic, as well as to investigate their beliefs and worries concerning end-of-life care. Questionnaires were administered to clinic outpatients, university students and the general public in western Wisconsin. The total sample consisted of 1,368 Wisconsin adults. Less than 10% declined to participate. A majority of respondents (57%) supported the legalization of PAS. Beliefs and worries about end-of-life care reveal that citizens understand they can decline treatment they do not wish. However, only 55% believe that most patients are kept comfortable as they die. Furthermore, respondents are worried that medical technology will be used to prolong their lives against their wishes.

INTRODUCTION

Physician-assisted suicide (PAS) has been hotly debated in the literature over the last decade. The scholarly papers on this issue can be divided into two categories: conceptual papers which focus on whether or not such a practice is moral,[1-6] and empirical papers that investigate attitudes toward legalization of the practice.[7-9] This latter category grew rapidly after the first passage of the Oregon "Death With Dignity Act" in 1994 and has been growing again since the second Oregon vote in 1997 and recent implementation of the law—particularly studies which examined physician attitudes toward PAS.[7,10-15]

The attitudes of physicians are important in the sense that their professional practice is directly impacted by the legalization of PAS; however, it is the perceptions and concerns of the public which drive this "right-to-die" movement. For example, the legalization of PAS in Oregon emerged from the grassroots when the public first placed the measure on the 1994 ballot and voted it into law through Oregon's initiative process.

The Wisconsin legislature has considered the issue of physician-assisted suicide since the first introduction of proposed policy in 1993-1994. During the 1997-98 legislative session, Senator Fred Risser and Representative Frank Boyle, citing constituent polls in support of physician-assisted suicide, again introduced a "Death with Dignity" bill (See Figure 1).[16] While this latest attempt did not reach a floor vote in either the Senate or Assembly, there is every indication that a modified version of this bill will be introduced in the next legislative session.

The opinions of the public have been given some voice in the literature,[7-9,12,17] suggesting that the majority of Americans support physician-assisted suicide. Given the legislative consideration in Wisconsin, we sought to examine the attitudes of citizens in this state concerning the legalization of physician-assisted suicide and to investigate factors which might influence the thinking of Wisconsinites regarding the legalization of PAS. The findings regarding influencing factors are presented elsewhere.[18] In this current study we examined differences in attitude toward the legalization of PAS by beliefs and worries concerning end-of-life care.

METHODS

Questionnaires were administered through two data collection sites: 1) through the internal medicine department at an outpatient clinic in western Wisconsin and 2) through upper-division undergraduate students in the health ethics and family policy courses at a four-year university in western Wisconsin.

Both clinic nurses and university students received training by the researchers in recruitment of subjects and administration of the survey. During the study period, nurses in the clinic setting explained the study to each consecutive patient after the nursing intake was completed. Patients were told that only the university researchers would see their completed

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Figure 1. Summary of Physician-Assisted Suicide Proposal Introduced by Representative Frank Boyle & Senator Fred Risser

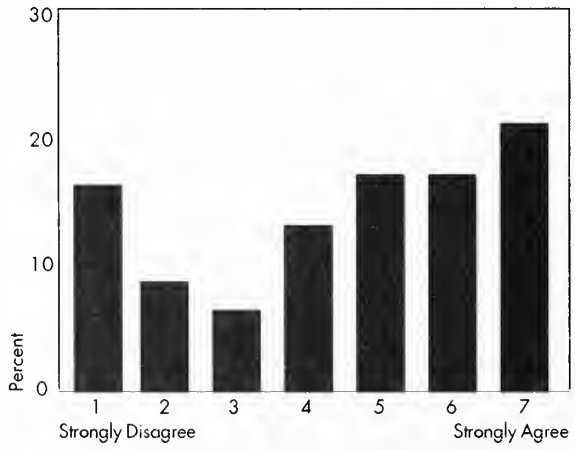
Individual requesting physician-assisted suicide must be:
- At least 18 years of age.
- Resident of Wisconsin.
- Suffering from a terminal disease (defined as an incurable and irreversible disease that will cause death within six months), confirmed by two doctors.
- Of sound mind & not incapacitated.

Procedure for request to physician:
- First request must be made orally.
- Not fewer than 15 days later, the patient must again make the request in writing, signed in the presence of 3 qualified witnesses.
- If the patient is in a health care facility, at least one of the witnesses must be a patients' advocate designated by the Board on Aging and Long-Term Care.
- After request is filed, patient must make a second oral request.

Witnesses must be at least 18 years of age and cannot be any of the following:
- Related to the patient by blood, marriage or adoption.
- An individual who has knowledge that he or she is entitled to or has a claim on any portion of the requester's estate.
- irectly financially responsible for the requester's health care.
- An individual who is a health care provider who is serving the patient at the time of the witnessing; an employee, other than a chaplain or a social worker, of a health care facility in which the requester is a patient.

The physician must:
- Inform the patient of diagnosis & prognosis.
- Inform the patient of the probable results of taking the prescribed medication and alternatives to doing so.
- Refer the patient to a consulting physician for review.
- Refer the patient to a psychiatrist or psychologist for review, if that person is suffering from a psychiatric or psychological disorder.
- Certify that the statutory requirements have been met.
- Ask the patient to inform next of kin about the request.
- Offer the opportunity for the patient to revoke the request.

Figure 2. Attitudes toward physician-assisted suicide



survey form and if they wished to participate, they could place their completed form in the box as they left the clinic. A few took the survey home and returned it through the mail. Nurses estimated that fewer than 10% of patients declined to participate. Each patient was given a passive consent form which explained the purposes of the study and guaranteed confidentiality. If patients initiated a discussion of the survey questions, both nurses and physicians responded that they could not discuss the survey questions until after the questionnaire was completed and placed in the box.

Students were required to collect 12 questionnaires, six from other university students or employees and six from outside the university. In general, students recruited subjects from among their acquaintances, friends and family by explaining the purpose of the study and asking if the subject would be willing to complete the form and place it in an envelope. Passive consent forms were given to each subject and students returned completed questionnaires to their professors. Students also reported that fewer than 10% of subjects declined to participate. In addition, students signed a form verifying the authenticity of the data. In order to check for authenticity, statistical comparisons between clinic data and student data were made on attitude toward PAS. No significant differences were found; thus, data from both collection sites were combined.

Criteria for participation in the study included the following: subject must be at least 18 years old; fully competent; able to speak, comprehend and read in English; give verbal consent to complete the survey questionnaire; and be currently residing in Wisconsin. One exception was made on the criterion for fluency in English. Because western Wisconsin has a significant population of Hmong immigrants, we wished to oversample for older Hmong who do not speak or read English. Therefore, 50 older Hmong were interviewed by a Hmong research assistant who read the questionnaire aloud to the subject in Hmong and transcribed the subject's response in English.

Approval for this study was granted by the University Human Subjects Review Committee.

Sample. The total sample for this study consisted of 1,368 individuals in western Wisconsin. The majority (84%) reported excellent or good health, and 60% were female. Respondent ages ranged from 18 to 96, mean = 39, std. = 18.3. Ninety percent were Caucasian and less than 30% held college degrees. (See Table 1.)

Measures. Attitude regarding legalization of physician-assisted suicide was measured by a single item utilizing a 7-point Likert scale ranging from strongly

agree (7) to strongly disagree (1) with the following statement: "There should be a law which allows a physician to prescribe a lethal medication for a competent terminally ill adult who wishes to end his or her life."

Worries about end-of-life care were examined with three items:

1. I believe I always have a right to decline medical treatments and technology which I do not desire, even if they might prolong my life.
2. When it becomes clear that treatment is no longer working, I believe most patients are kept reasonably comfortable as they die.
3. I worry about being kept alive against my wishes when my body is ready to die.

Possible responses to each of these three items included True, False and Not Sure.

RESEARCH QUESTIONS AND DATA ANALYSIS

Descriptive statistics were utilized to examine the attitudes of respondents toward the legalization of physician-assisted suicide, as well as their beliefs about end-of-life care. In addition, a 3 x 3 x 3 factorial design Analysis of Variance was utilized to address the following research question: "Are there significant differences in attitude toward PAS by belief that one can decline unwanted medical treatment, belief that one will be kept comfortable while dying, and worry about being kept alive against one's wishes."

RESULTS

Attitudes toward physician-assisted suicide

Respondents used the full response scale (ranging from 1 to 7) to describe their attitudes toward physician-assisted suicide (Figure 2). The mean response was 4.5 (with a standard deviation of 2.0), just slightly on the "favoring attitude" side of the scale midpoint of 4. If responses of 1-3 are categorized as opposition and 5-7 as in favor of legalization of PAS, then over half (57%) supported the legalization of physician-assisted suicide, while about one-third (31%) opposed it. The remaining 12% were in the middle (See Table 2).

Beliefs about the right to decline treatment

The majority of respondents (85%) understood that they have the right to decline treatment. Seven percent believed they did not have the right and 8% were uncertain if they had the right to decline treatment (See Table 2).

Beliefs about being kept comfortable at the end of life

Fifty-five percent of respondents believed that most patients are kept reasonably comfortable when they die. However, 20% did not hold this belief and 25% were uncertain (See Table 2).

Worries about being kept alive against one's wishes

Sixty percent worried about being kept alive against their wishes when their body was ready to die. Twenty-five percent did not worry and 15% were uncertain if they worried about being kept alive against their wishes (See Table 2).

Differences in attitudes toward PAS by beliefs and worries concerning end-of-life care

Significant main effects were found for declining treatment ($F=3.9$, $df = 2$, $p < .05$. and worry about being kept alive against one's wishes ($F = 17.9$, $df = 2$, $p = .001$, Table 3). That is, respondents who worried about being kept alive against their wishes were more favorable of legalization of physician-assisted suicide and those who understood that they could decline treatment also were more likely to support PAS.

No significant main effect was found by belief about being kept comfortable at the end of life. In addition, no significant interaction effects were found; that is, there were no significant interactions among the three independent variables (worries about end-of-life care).

DISCUSSION

Our findings in western Wisconsin support earlier research suggesting general public support for the legalization of PAS.[7-9,12,17] Fifty-seven percent supported legalization of PAS while 31 opposed and 12% were in the middle. Because this scale was bipolar, it is difficult to know what a midpoint answer indicates: whether respondents were undecided or simply neutral on the issue.

Beliefs and worries of Wisconsin citizens regarding end-of-life care are interesting to consider in light of the majority support for the legalization of physician-assisted suicide. While the vast majority of Wisconsinites had a clear understanding that they could decline medical treatment which they did not desire, they were less certain about the comfort care they would receive at the end of their lives. Slightly less than half either did not believe or were uncertain that most patients are kept reasonably comfortable as they die. Furthermore, a full 60% of respondents worried that they would be kept alive against their wishes, even when their body was ready to die.

These findings lend support to Lynn's[19] speculation that the public's desire for a broader range of options for end-of-life care illustrates a growing distrust of medical technology.

Regardless of one's position on the topic of legalization of PAS, it is important to recognize that

Table 1. Sample Characteristics
N= 1,368

Gender	60% female, 40% male
Age	mean = 39, s.d. = 18.3, range = 18–96
Ethnicity	Caucasian = 90% Hmong = 4.5% African American = 1.5% Asian American/PI = 1.4% Hispanic = 1.3% Native American = 1.0% Biracial = .3%
Marital Status	Single/never married = 39% Married/partnered = 49% Divorced = 7% Widowed = 5%
Religion	Pratestant = 37% Catholic = 34% Pratestant/Evangelical = 12% Hindu = .2% Buddhist = 2% Jewish = .5% Islam = .1% Other = 5% None = 9%
Educatian	8th grace ar less = 3% Same high school = 3% High Schaal Graduate/GED = 19% Tech School = 10% Same College = 38% College Degree = 19% Grad Degree = 5.5% Past Grad/Professional Degree = 3%
Health	Excellent = 30% Goad = 54% Fair = 14% Paar = 2%

medical technology, which is often a source of hope, has also become a legitimate fear for Americans who perceive that it may be used to prolong a life that a terminally ill patient is ready to leave.

Furthermore, it is ironic that while patients fear that sophisticated technology may be used against them to prolong life, they are not confident that their caregivers will be able to keep them reasonably comfortable in their dying – a basic treatment that is far less expensive than life-prolonging technology. An earlier issue of *WMJ*[20] reports that many physicians caring for cancer patients indicate that patients often do not receive the necessary pain control.

An examination of differences in attitudes toward PAS revealed that people who are worried about being kept alive against their wishes are more favorable toward legalization. This reasoning may be that PAS would address their worries. For example, an individual might reason that ending life early would avoid the life-prolonging technology altogether.

Most respondents recognized their right to autonomous decision-making by acknowledging their right to decline treatment. These individuals were also more likely to favor legalization of PAS, a practice which may be viewed as an assertion of individual rights.

Table 2. Beliefs and cancerns abaut end-of-life care

Attitude taward legalization of physician assisted suicide	Support Oppase Mid-point	= 57°/0 = 31 °/0 = 12 %
Beliefs about the right ta decline treatment	True False Nat Sure	= 85% = 7°/0 = S°/0
Beliefs abaut being kept camfortalbe at the end of life	True False Not Sure	= 55% = 20% = 25%
Worries about being kept alive against ane's wishes	True False Not Sure	= 60% = 25% = 15%

Table 3. Attitude toward legalization of physician-assisted suicide by beliefs and cancerns about end-of-life care.

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
PAS Main Effects					
Comfortable	11.7	2	5.8	1.5	.217
Decline Treatment	30.0	2	15.0	3.9	.02*
Kept Alive	136.8	2	68.4	17.9	.000**

*p≤.05; **p≤.0001

In summary, the beliefs and worries of these western Wisconsin citizens may, in part, help us understand why a majority support the legalization of PAS. This proposed legislation has been put on the back burner in Wisconsin. However, if patient fears about pain and unwanted technology are not adequately addressed, we can expect to see this issue emerge again, driven primarily by public demand.

LIMITATIONS TO THE PRESENT STUDY

Although results of this study provide several important findings regarding attitudes related to the legalization of physician-assisted suicide, certain limitations must be acknowledged. The sample is located in western Wisconsin and therefore cannot be generalized to the entire state. Furthermore, it is possible that because the sampling procedure used in this study was nonrandom that those Wisconsinites who were most opposed to the legalization of PAS may have been among the 10% who refused to participate in the study. Future research must be extended throughout

the state of Wisconsin in order to adequately assess citizen attitudes, particularly representing communities which include greater ethnic diversity.

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Medicare's Cooperative Cardiovascular Project: Can We Trust Our MetaStar Report Cards?

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SUMMARY

The purpose of Medicare's Cooperative Cardiovascular Project (CCP) is to improve the care of Medicare patients presenting with acute myocardial infarction (AMI). MetaStar is Wisconsin's Medicare peer review organization that administers Phase II of the CCP. A major Phase II objective is to increase the use of reperfusion strategies (thrombolysis and angioplasty) and angiotensin converting enzyme (ACE) inhibitors (when the ejection fractions is <40%) in patients presenting with AMI. After MetaStar presented Wausau Hospital's baseline Phase II data to us, we were asked to define a plan to improve the use of reperfusion therapy and ACE inhibitors. To verify the accuracy of the data presented to us, we reviewed the patient records used by MetaStar to calculate our baseline data for these 2 quality-of-care indicators. Our MetaStar reported reperfusion rate (48.4%) and ACE inhibitor rate (20.9%) were significantly different from that which we calculated (100% and 97%). Causes for the discrepancy included MetaStar abstractor's failure to exclude two patients who did not have an AMI, failure to correctly count patients who received the targeted treatment, and an inability of the abstractors to identify important CCP exclusion criteria. Thus, numerous patients who should have been excluded were inappropriately classified as "ideal" candidates for the targeted therapy. **We conclude:** There are major flaws in the data collection techniques used by MetaStar in Phase II of the CCP. These flaws produced erroneous conclusions concerning our use of reperfusion strategies and ACE inhibitors. Since these quality-of-care indicators are major targeted goals of Phase II, the errors are of special concern. We believe better-designed abstract forms, due diligence, and more thorough training could have prevented the errors. In presenting our concerns, we hope to foster a response by MetaStar to improve the quality of the peer review process.

Authors are associated with the Cardiavascular Associates of Northern Wisconsin, Wausau Wiscansin, The Cardiavascular Care Committee of Wausau Hospital and The CARE Faundatian, Wausau WI. Supported in part by The CARE Foundatian, Inc., Wausau WI and Wausau Hospital, Wausau WI. Reprint requests to: David Kent Murdack, MD, CARE Faundatian, 520 N. 28th Ave., Wausau, WI 54401; phone 715-847-2611.

INTRODUCTION

The Cooperative Cardiovascular Project began in 1992 as part of a new approach to peer review by Medicare's peer review organizations (PROs).[1] The original CCP was given the mandate to improve the quality of care of Medicare beneficiaries treated for acute myocardial infarction (AMI).[2,3] Improvement of care was judged by an increased adherence to quality indicator guidelines developed by the joint task force for the American College of Cardiology and the American Heart Association.[4] The CCP "encourages" health care providers to administer better care by furnishing them feedback regarding their frequency of deviation from optimal care. If adherence to any quality-of-care indicator is not within acceptable limits, the hospital is asked to define a plan to address the deficiency in care. The original CCP has been successful in improving the care and reducing the mortality of Medicare beneficiaries treated for AMI.[2,3] Moreover, a sense of cooperation has been fostered between the PRO's (MetaStar in Wisconsin) and the health care providers.

The original CCP showed that certain indicators of quality (use of aspirin and avoidance of calcium channel blockers) were widely adhered to.[3] However, adherence to other quality indicators, such as reperfusion (urgent angioplasty or thrombolytic therapy) and use of ACE inhibitors in patients with depressed left ventricular function, could be considerably improved.[3] Consequently, Phase II of the CCP was implemented. Baseline results of Phase II have been distributed to the health care providers of the participating Wisconsin hospitals. The results suggest that Wisconsin hospitals continue to significantly under-utilize reperfusion therapy and ACE inhibitors in AMI patients. However, when the health care providers of Wausau Hospital analyzed our baseline Phase II data, numerous errors were uncovered. In this report, we outline the type of errors observed as well as the source of these errors. In doing so, it is our hope that the accuracy of the data collected by

Table 1. Wausau Hospital and state comparison baseline data as presented by MetaStar

	Wausau Hospital			All Hospitals		
Algorithm	Den	Num	%	Den	Num	%
Reperfusion	62	30	48.4	685	306	44.7
Aspirin in hospital	139	136	97.8	1051	1015	96.6
Aspirin at dischorge	143	136	95.1	1036	985	95.1
Beta-blockers	128	124	96.9	790	686	86.8
ACE inhibitors	148	31	20.9	1157	301	26.0
No calcium channel blocker	153	153	100.0	1189	1180	99.2
Smoking cessation	19	17	89.5	142	87	61.3

Den – denominator-all eligible cases for a given algorithm
Num – numerator-all cases among eligible cases receiving treatment except for calcium blocker

MetaStar will be improved so as to maintain a level of respect and trust between MetaStar and Wisconsin health care providers.

METHODS

On May 5, 1998 MetaStar presented the baseline Phase II CCP data to the cardiovascular physicians of Wausau Hospital (Table 1).[5] The data represents Wausau Hospital's performance on pre-specified, quality-of-care indicators and compares it to an aggregate group of 30 state hospitals. We were commended on most issues. However on two particular issues, reperfusion and use of ACE inhibitors, our data was only marginally better (reperfusion), or worse (ACE inhibitors), than the state aggregate in general. The results also suggest that Wisconsin hospitals significantly under-utilize reperfusion therapy and ACE inhibitors in AMI patients (Table 1). We were asked to devise a plan to address the apparent deficiency in care in these areas. Our analysis of these two issues forms the basis of this study.

The names of the patients included in the analysis of reperfusion and ACE inhibitors were obtained from MetaStar. We verified with MetaStar that they classified these patients as "ideal" candidates for the therapy in question, meaning they met eligibility criteria and had no exclusion criteria.[3] The medical record of each patient was reviewed by at least two physician members from our Cardiovascular Care Committee and the nurse coordinator of our Quality Improvement Program. Each chart was checked for accuracy of data abstracted. We were particularly interested if the patient fit the generally accepted guidelines for instituting urgent reperfusion or ACE inhibitors. If the therapy was not utilized, we sought to determine if the record documented an accepted CCP exclusion.[3] We then calculated a reperfusion rate and ACE usage rate, similar to the method used by MetaStar, and compared our results to their data. Because significant differences were observed, we sought to determine the source of the difference. We first classified our review of each patient's medical record as either in agreement with MetaStar, or not in agreement. When we did not agree, the reason for disagreement was noted and categorized. Finally, we reviewed the Phase II abstract form and compared the exclusion criteria in the form to published exclusion criteria.[3]

All records were originally abstracted for MetaStar by Wausau Hospital employees skilled in medical coding and certified by MetaStar as competent abstractors. Because of the large discrepancy between our review of the records and the CCP abstractors' review, we asked them to review each disparate record again after given a list of the exclusion criteria published by the CCP.[3] To minimize any "intimidation factor," the review was done in private (abstractors present only) and the final results submitted to our nurse coordinator as an aggregate. We then noted whether each record was reclassified or whether the original position was maintained. We forwarded the results of our combined re-evaluation to MetaStar and asked them to correct our baseline data to reflect the errors we uncovered.

RESULTS

Reperfusion - Sixty-two candidates were included in the denominator of the reperfusion analysis by MetaStar (Table 1). Thirty patients received urgent reperfusion and 32 did not, giving us a MetaStar calculated reperfusion therapy rate of 48.4%.[5] However, our review of the same 62 charts yielded a much different rate. We agreed with MetaStar that each of the 30 patients treated with reperfusion therapy fit eligibility criteria. We disagreed with MetaStar in each of the remaining 32 patients.

Table 2 summarizes the 32 patients in which we had a discrepancy with the MetaStar data. There were two general reasons for the discrepancy: abstraction errors and interpretation of "ideal" candidacy. Two abstraction errors were noted. One patient was counted as having an AMI when urgent catheterization and enzyme data ruled out an AMI. The other patient went to the catheterization labora-

tory from the emergency room and received angioplasty but was not counted as having received that therapy. Failure to recognize important exclusion criterion was the most frequent cause for our discrepancy with the MetaStar data. Our review excluded all 30 remaining patients because we felt they did not meet the usual clinical criteria to justify urgent reperfusion[4] and had at least one recognized CCP exclusion.[3] Consequently, we felt these patients were inappropriately counted as "ideal" candidates for reperfusion. A few specific examples taken from the 30 patients we excluded illustrates the point:

1) A 72-year-old female was taken directly to the catheterization laboratory and then to the operating room with an AMI complicated by free wall rupture and cardiac tamponade;
2) A 90-year-old male was pain free and lacked ST-segment elevation on admitting ECG;
3) A 78-year-old with known dissecting aortic aneurysm was free of ischemic pain on arrival and lacked ST-segment elevation on admitting ECG.

Table 2 summarizes the criteria we used to exclude these 30 patients from the denominator of "ideal" reperfusion candidates. Many patients met more than one-exclusion criterion. Lack of ST-segment elevation on the admitting ECG was the most common reason for exclusion. Most of these patients were free of ischemic pain before presentation or treated and rendered pain free in the emergency room. The diagnosis of AMI was usually made hours later when enzymes turned positive. Frequently, ischemic pain was not even part of the picture. We included such patients under the CCP exclusion of "inadequate documentation of chest pain." This was especially common in patients whose presenting problem was pulmonary edema (seven patients). A small subsequent rise in the cardiac enzymes in these seven patients resulted in a subendocardial AMI diagnosis being added to that of pulmonary edema and congestive heart failure.

Cardiac catheterization within 12 hours of admission was also a common exclusion criterion. This criterion assumes that the results of catheterization indicate that a treatment other than angioplasty or thrombolysis was indicated.[3] Indeed, three patients were taken from the emergency room to the catheterization laboratory and then to the operating room for urgent cardiac bypass surgery because of left main or severe 3-vessel CAD (two patients) or repair of a ruptured heart (one patient). Three other patients were either treated medically or referred for non-urgent bypass surgery because they were no longer having acute ischemia. In one other patient, urgent catheterization demonstrated a widely patent infarct related vessel needing no intervention.

Sixteen of the 30 patients were >80 years old. Although advanced age (>80 years) was considered an exclusion criterion by the CCP, we counted it only when the record documented some reference to age and its complications (such as frailty, renal insufficiency, dementia, etc.) and also documented a desire to pursue a more conservative approach. In our practice, age is not used as the sole exclusion criterion.

Table 3 outlines the reperfusion exclusion criteria delineated in the original CCP as well as the Phase II abstract. Note that lack of ST-segment elevation on the ECG, documentation of chest pain, and urgent catheterization (see bold type) are not included in the Phase II abstract but were exclusion criteria in the original CCP.[3] The final category of "other" serves as an arbitrary "catch-all" exclusion to be used at the discretion of the abstractors by submitting a written description of the reason for exclusion.

When the abstractors reviewed each medical record included in Table 2 a second time, the exclusion criteria were recognized and each patient was reclassified. MetaStar accepted our calculated reperfusion rate of 100% and issued us a corrected data summary.[6]

ACE Inhibitor Usage - One hundred forty-eight patients were included in the MetaStar analysis in their calculation of appropriate ACE inhibitor usage at Wausau Hospital. Our rate was reported to be 20.9% (Table 1). We calculated a rate that was significantly different from MetaStar. Most of the difference was due to MetaStar's failure to exclude those patients with ejection fractions of greater than 40%. Consequently, nearly every patient with an AMI was considered an ACE candidate, rather than only those with poor left ventricular function. When this error was recognized, most of the 148 patients in the denominator (Table 1) are excluded by CCP criteria.[3] When MetaStar recognized this error, they issued a letter to our facility pointing out this omission.[7] They then changed the denominator from 148 to 35 "ideal" candidates.

In our review of these 35 patients, 31 patients went home on ACE inhibitors. Of the four patients not sent home on ACE inhibitors, one did not have an AMI (no elevation of cardiac enzymes) and each of the other three patients were tried on ACE inhibitors in the hospital. Two of these three were removed because of intolerance (hyperkalemia and/or renal insufficiency) clearly documented in the record. The only remaining patient received ACE therapy in the hospital but was not discharged on an ACE for unclear reasons. Thus on only one occasion did an AMI patient with poor left ventricular function not go home on an ACE

inhibitor without clear documentation of an exclusion criterion. Accordingly, we calculated our ACE usage rate to be 97% (31 of 32 patients). This rate was verified during our joint review with the abstractors. The errors in these four patients were brought to the attention of MetaStar. We were informed it was too late to correct this data.

DISCUSSION

The necessity for Phase II of the CCP is largely predicated upon the perception that there is a deficiency of care concerning the appropriate use of reperfusion strategies and ACE usage in AMI patients. This apparent deficiency in patient care is evident in Table 1, which includes our data as well as data from an aggregate group of 30 state hospitals. An analysis of the Wausau Hospital Phase II data demonstrates that our apparent deficiency in care was an artifact of a flawed peer review process. We can't help but wonder if the poor showing of the aggregate 30 state hospitals was also due to the flawed review system rather than deficient care.

The errors in the data were from multiple sources. The failure to correctly count patients who received the targeted therapy, or to include patients in whom an AMI was ruled out, seem like carelessness on the part of the abstractors. Similarly, the failure to inform the abstractors that an ejection fraction of greater than 40% was an exclusion criterion for ACE inhibitors[3,7] and the failure to incorporate adequate quality control checks, seemed careless on the part of MetaStar. These problems might be corrected with increased diligence.

More difficult to correct are those errors related to the use of reperfusion strategies. Many patients with obvious exclusion criterion were inappropriately classified as "ideal" reperfusion candidates because the system lacked the sensitivity to detect the exclusion criterion (Table 2). Urgent reperfusion has been shown to be beneficial under very specific circumstances. Patients presenting within 12 hours of the onset of chest pain with ST-segment elevation on the ECG clearly benefit from reperfusion.[4] When evidence of on-going ischemia is lacking, the value of urgent reperfusion is not established. Thrombolytic therapy does not appear to improve outcomes when ST-segment elevation is lacking; perhaps because thrombotic coronary artery occlusion is much less likely to be the cause of AMI in this setting.[9] Although such patients should have been excluded from the list of "ideal" reperfusion candidates,[3] our abstractors were unable to consistently recognize this important exclusion as well as multiple other exclusion criteria (Table 2). We felt that all 30 patients who were not urgently reperfused had adequate documentation to justify not pursuing an urgent reperfusion strategy. Most of these patients (67%) lacked ST-segment elevation on the ECG and were free of ongoing chest pain. Several patients presented with congestive heart failure symptoms rather than ischemic symptoms. Since the mechanism of AMI in this setting is usually not due to acute coronary artery occlusion,[9] urgent reperfusion is not indicated and may actually be considered contraindicated.

Although the exclusion criteria were very obvious to us on record review, they were not obvious to the abstractors. The reason becomes evident when one examines the medical background of the abstractors and analyzes the Phase II abstraction form. Our abstractors, like most CCP abstractors, work in the medical coding department and have no special

Table 2. Reasons for Wausau Hospital's disagreement with MetaStar in 32 patients

	No. (%)
1) Abstraction errors	2
Did not have AMI	1 (3)
Received urgent angioplasty but not counted	1 (3)
2) Exclusion criteria errors	30
No ST-segment elevation on first ECG	20 (67)
Inadequate documentation of chest pain or > 12 hours	16 (53)
Catheterization within 12 hours of arrival without reperfusion*	6 (20)
Documentation that reperfusion considered but decided against	5 (17)
Advanced age*	5 (17)
Patient (or family) refusal	2 (7)

AMI: acute myocardial infarction, *See Results section for explanation

Table 3. Comparison of Original and Phase II CCP exclusion criteria.

Original CCP as published[3]
No ST-segment elevation on first electrocardiogram; onset of **chest pain more than 12 hours** prior to admission or **inadequate documentation of the chest pain**; history of chronic liver disease, bleeding, stroke, peptic ulcer disease; surgery in the past month, recent trauma; recent cardiopulmonary resuscitation; coagulopathy; evidence of bleeding on admission; treatment with warfarin on admission; age >80 years; documentation that thrombolysis was considered but the physician or patient decided against it; **cardiac catheterization within 12 hours of arrival** without angioplasty (assumed to be an aborted angioplasty)

Phase II abstract form
Patients with chronic liver disease; with history of bleeding or bleeding on arrival; with peptic ulcer disease; with recent trauma; with surgery in past 2 months; with recent cardiopulmonary resuscitation; with coagulopathy, with warfarin on admission, with stroke within 2 months; with advanced age; patient refusal; **other** (describe any other contraindications)

background in cardiac care. In fact, most have no background in any medical care. Consequently, their ability to recognize relative, or even absolute, contraindications to any proposed therapy is limited. Not surprising then, each abstractor indicated they felt most uncomfortable trying to determine which patients should have received reperfusion therapy and which fit appropriate exclusion criterion.

A review of the abstract forms used to collect the data also helps explain why exclusion criteria were missed. Most physicians accept the exclusion criteria as published (Table 3).[3] However these exclusion criteria are not spelled out well in the Phase II abstract form. This abstract form did not exclude patients lacking ST-segment elevation on admitting ECG, those lacking ongoing ischemic pain or those taken urgently to the catheterization laboratory and treated with strategies other than angioplasty or thrombolytic therapy. Based on the judgement of the abstractor, most of these situations could still be excluded in an "other" category on the abstract form. Most abstractors do not have the training to make this judgement.

MetaStar was responsible for certifying the accuracy of our CCP abstractors. In examining this certification process, we were surprised to learn that it did not include joint record review of any of these records. As far as we know, MetaStar did not check any of these records for accuracy of data abstracted. In fact, each abstractor indicated that they received no feedback from MetaStar concerning their accuracy of abstraction of any of these records. MetaStar readily acknowledged the abstraction errors when pointed out and issued us a corrected data summary.[6] Perhaps closer MetaStar supervision of this abstraction process could have prevented many of the errors?

Finding numerous errors in the CCP data does not appear to be an isolated phenomenon. In response to complaints from physicians, Dr. Robert Vogel, the American College of Cardiology's advisor to the CCP, conducted a review of the CCP data base. He found that the overall accuracy of a CCP pronouncement that an individual patient was an "ideal" candidate for a specific therapy, but did not receive it, varied from 88% to a mere 39%.[10] Such results becoming increasingly alarming as the Health Care Financing Administration gives serious consideration to making Medicare reimbursement contingent upon adherence to CCP quality assurance standards.[10]

In summary, our review of the Wausau Hospital Phase II CCP baseline data uncovered numerous errors from multiple sources. A plan needs to be instituted to rectify this problem. This plan should include a better-designed abstract form and supervision by medically trained personnel. Although our review was limited to Wausau Hospital data, similar errors in the CCP database may be widespread. We encourage each participating hospital, and MetaStar, to carefully re-examine the Phase II data. If widespread errors are confirmed, and reperfusion rates and ACE usage are better than reported, perhaps there isn't a need for the millions of dollars that will be spent nationally on Phase II of the CCP.

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Comment from MetaStar

by Jay A. Gold, MD, JD, MPH

Editor's Note: *With permission from the authors of "Medicare's Cooperative Cardiovascular Project: Can We Trust Our MetaStar Report Cards?", WMJ invited MetaStar to comment. Doctor Gold is Senior Vice President, MetaStar.*

On behalf of MetaStar, I think it is appropriate for us to be held to as high a standard as that toward which we urge caregivers to aim. Clearly, the errors in data collection by the Wausau abstractors for the reperfusion indicator were serious. (Less so for the ACE inhibitor indicator, where ultimately the authors disagreed with only three abstractions.) The lesson for us is that we need to do a better job than we did in training those who are abstracting their own data, especially as we expect that in the future more data collection will be performed by collaborators themselves. We already have put into place improved training methods and testing.

We do take serious issue with a number of particulars in the paper. However, in the interest of brevity, I will dwell only on what I take to be the paper's central misunderstanding, as stated in its title. MetaStar's quality improvement projects are not meant to serve as report cards in any way, shape or form. No one could be more aware than we that the exclusion of unclear cases, the small number of patients for each indicator at smaller hospitals, and the chart's failure to reflect all of the clinical complexities of a case, make it impossible for chart-derived indicators such as ours to constitute the measure by which the care an institution provides can be ranked. Furthermore, contrary to the authors' implication, there has been no discussion whatsoever at MetaStar or at the Health Care Financing Administration (HCFA) of making Medicare reimbursement contingent on how high one's rates are on our indicators.

Our projects are designed to support collaborating providers, practitioners and plans in their quality improvement efforts. Our indicators are meant as tools to help collaborators decide where and how to focus their improvement efforts. Numerous studies indicate that everyone has *some* room for improvement, although just what needs improving is apt to differ by individual and by institution. If Wausau already is reperfusing 100% of those eligible, then they are to be congratulated; this will free them up to work to improve areas where an opportunity for improvement exists at Wausau. In upcoming hospital-based projects MetaStar will be offering Wausau and other hospitals support for improving care (preventive and acute) in pneumonia, heart failure, and stroke, as well as in other aspects of MI care, and one of these topics might be more suitable.

What I find a bit mysterious is the authors' query at the end of their paper about whether the government should be spending money on the CCP (and, by implication, on other, similar projects). The authors have a clear commitment to providing the best possible care, and I presume they don't think the care they provide is incapable of being improved. MetaStar is eager to provide support to them—at taxpayer expense—as they seek to make the care they deliver as good as possible. Why would they not simply (and legitimately) call for better abstractor training, rather than question the very existence of the program? From what they say at the end, I surmise that—as so often when data are collected for purposes of improvement—they may fear that the information gathered will be used against them somehow. But quality improvement in general, and MetaStar projects in particular, are not about penalizing people. In fact, over the 6 years we have pursued this approach, we have not penalized those with low rates. And we don't intend to start.

To repeat: what our projects *are* about is producing optimal health care. MetaStar stands ready to work alongside the authors, and alongside all Wisconsin physicians, providers, and plans, to create the kind of consistently excellent care about which we all dream.

Progressive Multifocal Leukoencephalopathy Case Report and Review

Christopher S. Massa, MD, and David K. Wagner, MD

INTRODUCTION

Progressive Multifocal Leukoencephalopathy (PML) is a catastrophic central nervous system (CNS) complication of immunosuppression, the incidence of which has markedly increased since the beginning of the AIDS epidemic. We present a case of PML as the initial illness in a patient diagnosed with AIDS.

CASE REPORT

A 30-year-old man presented to our urgent-care clinic with 2 weeks of progressive left-sided weakness, numbness, lethargy, and personality changes. His weakness had progressed to the point that he had fallen at home. He was currently on no medications but had been treated for oral candidiasis with oral fluconazole 2 weeks previously. His past medical history was significant for a rectal cyst in 1983. He admitted to unprotected homosexual activity approximately 10 years prior to presentation.

Physical exam revealed a temperature of 100.3°. Heart rate was 108 beats per minute. Blood pressure was 102/70 mm Hg. Respiratory rate was 14 breaths per minute. Generally, he appeared cachectic and talked with hesitant, slow speech. Head and neck exam revealed oral candidiasis and left supraclavicular lymphadenopathy. Heart, lung and abdominal exams were unremarkable. Neurologic exam revealed weakness in the left seventh cranial nerve and a nonfunctioning left eleventh cranial nerve. There was no sensation and flaccid paralysis in the left upper extremity. There was minimal sensation and only 1/5 motor activity of the left lower extremity. Deep tendon reflexes were 2+ on the right and 3+ on the left. Babinski reflexes were not present.

Laboratory studies revealed a hematocrit of 32 with a normal MCV. Electrolytes and renal function were normal. CSF examination was unremarkable. HIV serology was positive and the CD4+ count was 25. CT of the head revealed atrophy and frontal and parietal deep white matter low attenuation changes. MRI revealed a large abnormal process in the right parietal and parieto-occipital areas with a ring enhancing lesion adjacent to the right ventricle. This was felt to be PML, toxoplasmosis, or CNS lymphoma. In spite of negative toxoplasmosis titers (IgG < 1:16) he was treated empirically for this possibility but did not improve. Instead, his neurologic status continued to decline. The patient and his family declined brain biopsy or repeating the lumbar puncture. The patient was started on AZT for treatment of HIV. He was discharged after 7 days with home physical therapy, nursing, and follow-up in the infectious disease clinic. His weakness progressed to involve his right upper extremity and he began showing signs of dementia on outpatient follow-up. Repeat MRI 2 weeks later revealed increased size and enhancement of previous lesions. Palliative care measures were begun. He died approximately 2 months after discharge.

Doctor Mosso is o Cordiology Fellow ond Doctor Wogner is Associote Professor, Infectious Diseoses, both ot the Medicol College of Wisconsin.

DISCUSSION

PML is a fatal demyelinating disease of the CNS associated with infection of oligodendrocytes by the JC virus in patients with impaired cell-mediated immunity.[1] This should not be confused with Jakob-Creutzfeldt disease, which is not related. The virus was named for a patient (JC) in which the virus was isolated after his death.[2] The incidence of PML has dramatically increased since the AIDS epidemic.[3] Approximately 4% of AIDS patients will develop PML, and in half of those it is the AIDS defining illness.[4] The mean CD4+ at the time of diagnosis is approximately 85.[5] The disease usually presents with rapidly progressing focal neurologic deficits due to demyelination of white matter. Common presenting features include motor function abnormalities, hemiparesis, aphasia, visual deficits, altered mental state, personality change, dementia, ataxia. Headache is uncommon.[6] Seizures are also uncommon, as this is a disease of white matter.[1]

The differential diagnosis of cerebral mass lesions on neuroimaging in the AIDS patient includes cerebral toxoplasmosis, primary CNS lymphoma, PML, tuberculous or fungal abscesses, focal viral encephalitis (cytomegalovirus, varicella-zoster virus, herpes simplex virus,) metastatic systemic lymphoma, metastatic

Kaposi's sarcoma, acute stroke and late AIDS dementia complex. Awareness of these may lead to more prompt evaluation, diagnosis, and treatment which could reduce morbitity and mortality.[7]

A presumptive diagnosis of PML may be made by the historical features listed above. CT scanning may show non-enhancing, homogenous, hypodense lesions in the cerebral white matter without mass effect.[8] MRI is more sensitive and is the preferred form of imaging for suspected PML. Proton or T2-weighted images demonstrate patchy and/or confluent areas of increased signal intensity in the white matter. T1-weighted images show lesions of low signal intensity with an homogenous appearance and a poorly defined edge. These lesions do not usually enhance with Gadolinium which can help distinguish PML from lesions associated with Toxoplasma gondii and lymphoma.[1] Routine CSF analysis for glucose, protein, and cells is usually unremarkable.[9] Examination of the CSF for JC virus DNA by Polymerase Chain Reaction (PCR) may confirm the diagnosis of PML, however, a negative result does not exclude the diagnosis.[1] Brain biopsy is the only way to make a definitive diagnosis. Brain biopsy has a low morbidity and mortality when done through CT or MRI-guided stereotactic biopsy.[6] There is currently no effective treatment for PML. Mean survival time after presentation of neurologic symptoms is 5.6 months in patients with a CD4+ count of less than 90. Forms of therapy tried are cytosine arabinoside (ARA-C), alpha interferon, vidarabine, and zidovudine. Currently, improvement in immune function is a possible means for disease modification. Combinations of anti-retroviral medications or protease inhibitors may improve immune function in the AIDS patient with PML.

CONCLUSION

Progressive multifocal leukoencephalopathy is a usually fatal complication of AIDS caused by the JC virus. Diagnosis is made through history, MR imaging, and PCR analysis of CSF for the JC virus. Even though PML occurs as the AIDS defining diagnosis in only approximately 2% of cases, there are important prognostic implications to the diagnosis. Although there is no effective treatment for PML, new anti-retroviral agents may be promising.

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Poland Sequence: Two Unusual Cases and Brief Review of the Literature

Steven G. Hammer, MD

ABSTRACT

Poland Sequence consists of a congenital absence of the pectoralis major muscle. Classically, the sequence also includes ipsilateral hand anomalies. Identified patients may be screened for renal and other anomalies. The condition results in physical and cosmetic disabilities which can be treated if properly triaged. The chest wall anatomy may be delineated with computed tomography and MRI if surgery is planned. Two cases with unusual findings including lumbosacral spine malformation and contralateral hand syndactyly are presented.

INTRODUCTION

Classic Poland Sequence, also called Poland Syndrome, an association of congenital absence of the pectoralis major muscle and ipsilateral hand deformities, is easily diagnosed, and treatment can lead to improved quality of life for people with this uncommon sequence. The two cases of atypical Poland Sequence reported here are the first reports of Poland Sequence in Puerto Rico and Guatemala. Both illustrate, for family physicians, the importance of physical diagnosis and reinforce the practice of looking for additional anomalies when one is discovered.

Patient #1

A 24-year-old Puerto Rican man presented with back and left shoulder pain. He had applied for disability in the past. However, he was thought to have a neurologic defect and disability was denied. The error resulted from a language barrier and lack of recognition of his physical findings. The patient had no sternal-costal head of the left pectoralis major. There was an axillary band, which limited movement on abduction and external rotation of the shoulder. The left hand was slightly smaller and dermatoglyphics (palm print pattern) were asymmetrical.

Family history revealed that the patient was one of 15 siblings. One sister had a cleft palate and one niece had a meningomyelocele.

Diagnostic examinations: On X-ray, osseous structures of the left shoulder and chest were normal. The chest X-ray was initially interpreted as showing more vasculature in the right upper lung. When the physical findings were discussed, it was concluded that there was increased radiolucency of the left hemithorax due to the absent muscle mass. Lumbosacral spine series showed bilateral spondylosis, L5-S1, with a grade 1 spondylolisthesis. MRI showed small hypoplastic ribs at T12. An abdominal CT scan and ultrasound showed normal kidneys.

Treatment: The shoulder pain was treated with range-of-motion exercises and with physical therapy which provided partial temporary relief. Anti-inflammatory drugs were discontinued after recurrent duodenitis. The patient later suffered a motor vehicle accident and eventually underwent a L5-S1 spinal fusion due to incapacitating low back pain. He was referred to plastics/hand surgery for the axillary web and shoulder pain.

Patient #2

The second patient is a 20-year-old Guatemalan man with an absent left pectoralis major and symbrachydactaly (hypoplastic central digits with syndactyly). The hand deformity was consistent with the classic description of Poland Sequence. A partial simple syndactyly of the second and third digits of the contralateral hand was an unusual finding. He was referred for surgical evaluation.

DISCUSSION

Although only some 400 cases of classic Poland Sequence have been reported in the world literature,[1] the definition has evolved, and the Sequence is now thought to include shoulder-girdle anomalies with or without upper extremity involvement.[2] A likely etiology is a vascular abnormality which causes failure of development. Poland Sequence is an uncommon condition but there are key features which are helpful in identifying and managing the condition. Poland Sequence may be an incidental finding or found on

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specific exam for syndactyly. Approximately 9% of people with syndactyly have congenital absence of the pectoralis major.[3] The Sequence may also be found after an abnormal chest X-ray or EKG (see Figures 1 and 2 for abnormalities).

The sternal costal head of the pectoralis is generally absent. There is considerable variation in the upper extremity abnormalities from the classic findings noted above. Other involved muscles may include the latissimus dorsi, serratus anterior, intercostal, infraspinatus, supraspinatus and deltoid. The breast may be absent or hypoplastic and axillary webs, hypoplasia of the ribs, and scoliosis also are found.[2] Renal anomalies occur infrequently, most often on the ipsilateral side.[4] Leukemia and lymphoma have been reported to occur more frequently in people with Poland Sequence.[5]

Diagnosis can generally be made on the basis of physical exam. An absent pectoralis can be identified in a newborn by asymmetry of the anterior axillary fold during the Moro reflex.[6] Physical examination and routine chest x-ray cannot define the anatomy in Poland Sequence as well as MRI or CT scan,[2] although a detailed method of physical examination has been described.[7] Ultrasound is recommended to rule out renal anomalies.[4] EKG voltage in the precordial leads may be increased and interpreted as left ventricular hypertrophy. Similar changes have been reported after mastectomy; therefore standard criteria may not apply in these patients.[9] Chest X-rays may be interpreted as having vascular asymmetry when the clinical history is not available.

Hand function may be improved by separation of digits, deepening of web spaces and amputation of severely hypoplastic digits. Restricting axillary webs can be removed. In general there is little physical disability from simple absence of the pectoralis muscle. Cosmetic appearance is a problem with the chest wall deformity, especially for women.[10,11] Chest wall reconstruction may be done using the latissimus dorsi muscle, a custom-made silicone prosthesis and/or a breast prosthesis.[11,12] Genetic counseling is unnecessary since this is generally a sporadic condition. Because of a few familial cases that have been found, physical examination of first-degree relatives is recommended.[8]

Unusual features of the first case included a restricting pectoral remnant, LS spina bifida occulta and hypoplastic T-12 ribs. Unusual features of the second case included contralateral syndactyly. Review of the English literature from 1964 revealed hemivertebrae, scoliosis, and thoracic spina bifida occulta, but no cases of LS spina bifida or spondylolisthesis.[13] There were only two cases where the contralateral hand was also affected.[3,14]

Figure 1: The sterno-costal head of the pectorolis mojor is absent in Poland Syndrome.

Figure 2: Ipsilateral symbrachdactylty is a clossic finding in this syndrome. Contralateral syndactyly is a very unusual finding.

Initial referral of the first patient was misdirected since the anomaly was not recognized despite multiple prior physical examinations. Physical therapy was helpful but not curative for the shoulder pain, and improved function probably could have been obtained by removing the axillary web. Family physicians are encouraged to be alert to physical findings and thus improve diagnosis, appropriateness of care, and patient satisfaction.

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Recent Developments in the Doctrine of Informed Consent

By Ruth M. Heitz, JD, SMS Associate General Counsel

Wisconsin physicians have a duty to inform patients about the benefits and risks of treatment and obtain the patient's informed consent prior to treatment. This duty, the doctrine of informed consent, is firmly rooted in Wisconsin law. Essentially, the law recognizes that patients have a right to determine what will be done with their body, based on the physician's revelation of the risks and benefits of available treatment options.

Compliance with the informed consent doctrine is frequently the basis for litigation. Two recent court cases affect the physician's obligation under the informed consent doctrine: *Schreiber v. Physicians Insurance Company* and *Brown v. Dibbell.*

The *Schreiber* case, which was detailed in the March/April *WMJ*, centered on a physician's obligations when a patient withdraws consent and requests another viable treatment option.

In this case, a patient consented to a vaginal delivery, but revoked consent during her labor. She told the physician at least twice that she changed her mind and wanted to deliver by cesarean section. The physician urged patience, concluding that neither the labor nor the patient's pain posed any danger for the patient or the child. Later during labor, the baby's heart rate dropped and the physician performed an emergency cesarean section. The patient's uterus had ruptured, depriving the baby of oxygen. The baby was born a spastic quadriplegic, unable to move below her neck or speak.

The patient sued the physician alleging that he violated her right to informed consent by failing to conduct an informed consent discussion again after she withdrew her consent to a vaginal delivery during labor. The Wisconsin Court of Appeals concluded that a patient may withdraw consent after it has been given, necessitating another informed consent discussion. According to the court in *Schreiber*, when the patient withdrew her consent to a vaginal birth during labor, alternative viable modes of medical treatment continued to exist. The patient's consent withdrawal constituted a substantial change in circumstances that required the physician to conduct a new informed consent discussion, providing the patient the opportunity to select a different mode of treatment.

The difficulty posed by the *Schreiber* case is that patients generally don't use clear phrases such as, "I am revoking my informed consent for this procedure." In fact, the physician in the *Schreiber* case testified that although the patient requested a cesarean section, he believed that after counseling the patient against cesarean delivery, she concurred in the decision to continue with the vaginal birth. Although physicians are not expected to be omniscient, the *Schreiber* case suggests that physicians should conduct an inquiry when patients indicate an unwillingness to proceed with the previously agreed treatment. The court in *Schreiber* made it clear that a patient does not have the right to demand any treatment she desires, nor is a physician required to perform procedures that are not medically viable or procedures for which the physician lacks the appropriate expertise.

In *Brown v. Dibbell*, which was decided in June, 1999 the patient sued her physician after having bilateral mastectomies. Prior to the surgery, the patient felt a lump in her right breast. At the time, she had breast implants. She was very concerned about cancer because of her family history, but there was no confirmation that the patient actually had cancer. After surgery, she experienced scarred breasts, asymmetrical nipples and areola, loss of sensation in her breasts and other problems requiring additional surgeries. The patient alleged that the physician failed to discuss treatment options such as mammograms or wait-

ing six months, that the physician never quantified her risk of developing breast cancer and that he repeatedly assured her that with postoperative reconstruction she would be as cosmetically pleasing in appearance as she was prior to the mastectomies. The physician testified that he spent a considerable amount of time with the patient discussing treatment options including waiting for six months. According to the physician's testimony, the patient refused the option of waiting for six months and taking another mammogram because of an intense fear of developing breast cancer.

On appeal, the key issue was whether a patient can be contributorily negligent in an informed consent case by failing to exercise ordinary care for her own well-being. The Wisconsin Supreme Court concluded, "in most cases it is illogical and contrary to the concept of informed consent to place on patients the burden of asking questions of their doctors or engaging in independent research. It is the doctor who possesses medical knowledge and skills and who has the affirmative duty under Wis. Stat. § 448.30 both to determine what a reasonable patient in the position of Ms. Brown would want to know and to provide that material information." The court stated that the imposition of a requirement that patients ask questions or independently seek information would erode a physician's duty to obtain informed consent.

The court in *Brown* suggested that a patient might be contributorily negligent in an extraordinary fact situation, such as selecting a treatment option that was presented by a physician as a result of the patient providing false medical information. The court's conclusion that extraordinary facts are necessary to invoke the theory of contributory negligence on the part of the patient provides little guidance regarding the types of situations that a court might deem to be extraordinary.

Although the recent court decisions fail to clearly articulate helpful rules for complying with the informed consent requirement, when the cases are read together with Wis. Stat. § 448.30, a few concepts emerge.

1. Physicians should carefully consider the various modes of treatment and the risks and benefits associated with each treatment or procedure. Physicians should engage in a pointed discussion with the patient regarding the risks and benefits of the various treatment options.
2. Physicians should meticulously document discussions about treatment alternatives and the attendant risks and benefits. Some physicians require the patient to sign a form stating that the risks and benefits of a particular medical procedure have been fully explained. Such a vague statement might be insufficient to establish full compliance with the informed consent requirement. In some instances, it might be appropriate to have a nurse or other staff member serve as a witness to the informed consent discussion. It might also be appropriate for physicians to provide training to staff regarding appropriate documentation of informed consent. Although it is the physician's obligation to engage in the informed consent discussion, other staff members should fully understand the importance of documentation. Any staff members who serve as witnesses should take careful notes and document the record. A staff person's documentation of the informed consent discussion does not obviate the need for the physician to document the discussion in the record. If a patient signs a consent form, then staff members should ensure that the form is fully and accurately completed by the patient.
3. The law allows a patient to withdraw consent to treatment. Consequently, physicians should pay close attention to statements made by the patient that suggest a possible withdrawal of informed consent for the agreed procedure. If a physician believes that consent has been withdrawn, then the physician should engage in a new discussion of treatment alternatives under the informed consent doctrine. The patient might select the same procedure that was previously selected, but in a subsequent legal action the physician could establish that the patient had the opportunity to select a different treatment after a new informed consent discussion was provided.
4. If a patient sues a physician for a violation of the informed consent doctrine, then the physician should discuss with his/her attorney the appropriateness of raising the claim of contributory negligence on the part of the patient.

Violations of the informed consent doctrine provide a basis for recovery to plaintiffs who otherwise might not have a viable claim under other negligence theories. Careful compliance with the doctrine of informed consent, documentation and good patient care will greatly reduce protracted litigation and the recovery of damages by patients.

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Waterloo, WI Waterloo Clinic: The Dean Medical Center in Waterloo, Wisconsin, population 2,712, has a position available for a family practice physician to do a full range of family practice, (obstetrics is preferred). The clinic hours are 8:00 a.m.-5:00 p.m. Monday through Friday with some extended hours and is currently staffed by one family physician. Each physician would work 4 days per week and see approximately 25-30 patients per day. All hospital admissions will be to Watertown Hospital in Watertown, Wisconsin, population 19,000. The call schedule will be shared with some of the family physicians who admit to Watertown Hospital. Excellent compensation and benefits are provided with employment leading to shareholder status. For more information please contact Scott M. Lindblom, Manager of Medical Staff Services, Dean Medical Center, 1808 West Beltline Highway, 1-800-279-9966 or (608) 250-1550 or Fax (608) 250-1441.

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Poynette, Wisconsin: Dean Medical Center, a 400 physician multi-specialty group, is actively recruiting for one BE/BC family practice physician with an interest in obstetrics to join our Poynette Family Practice Clinic where we currently have one family practice physician. Call is shared with the current family practice physician and back-up call with another group. Patients are hospitalized at Divine Savior Hospital in Portage, Wisconsin, 15 miles away. Poynette, population 1,662, is located less than an hour from Madison. For more information please contact Scott Lindblom, Manager of Medical Staff Services, Dean Medical Center, 1808 West Beltline Highway, 1-800-270-9966 or (608) 250-1550, FAX (608) 250-1441 or at home (608) 845-2390.

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Interested applicants should contact Deb Nowak, Physician Recruiter at Rice Medical Center, 824 Illinois Avenue, Stevens Point, WI 54481 or call 715-342-7501.

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Marshas@communityhealthcare.org
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www.wausauhospital.org

Waupun, WI Elm Avenue Clinic: The Dean Medical Center in Waupun, Wisconsin, has a position available for a family practice physician to do a full range of family practice, (obstetrics is preferred). The clinic is currently staffed by one pediatrician, one OB/Gyn and one nurse practitioner. Each physician would work 4 days per week and see approximately 25-30 patients per day. All hospital admissions will be to Waupun Hospital in Waupun, Wisconsin, population 6,040. The call schedule will be shared with some of the local family physicians who admit to Waupun Hospital. Excellent compensation and benefits are provided. For more information please contact Scott M. Lindblom, Manager of Medical Staff Services, Dean Medical Center, 1808 West Beltline Highway, 1-800-279-9966 or (608) 250-1550 or FAX (608) 250-1441.

Madison, Wisconsin: The Family Practice Department of Dean Medical Center, a 400 physician multi-specialty group, is actively recruiting a family physician with a strong interest in obstetrics for the new West Madison Clinic, located in Madison, Wisconsin, approximately 8 miles from the capital. Currently there are 3 family physicians and 2 physicians assistants that will be based at this location which is scheduled to open January 15, 2000. The call schedule will be 1 in 15 for OB and 1 in 18 for general family practice. The physicians at this location see approximately 25 patients per day and work 4 days per week. Excellent compensation and benefits are provided. For more information please contact Scott M. Lindblom, Manager of Medical Staff Services, Dean Medical Center, 1808 West Beltline highway, 1-800-279-9966 or (608) 250-1550 or FAX (608) 250-1441.

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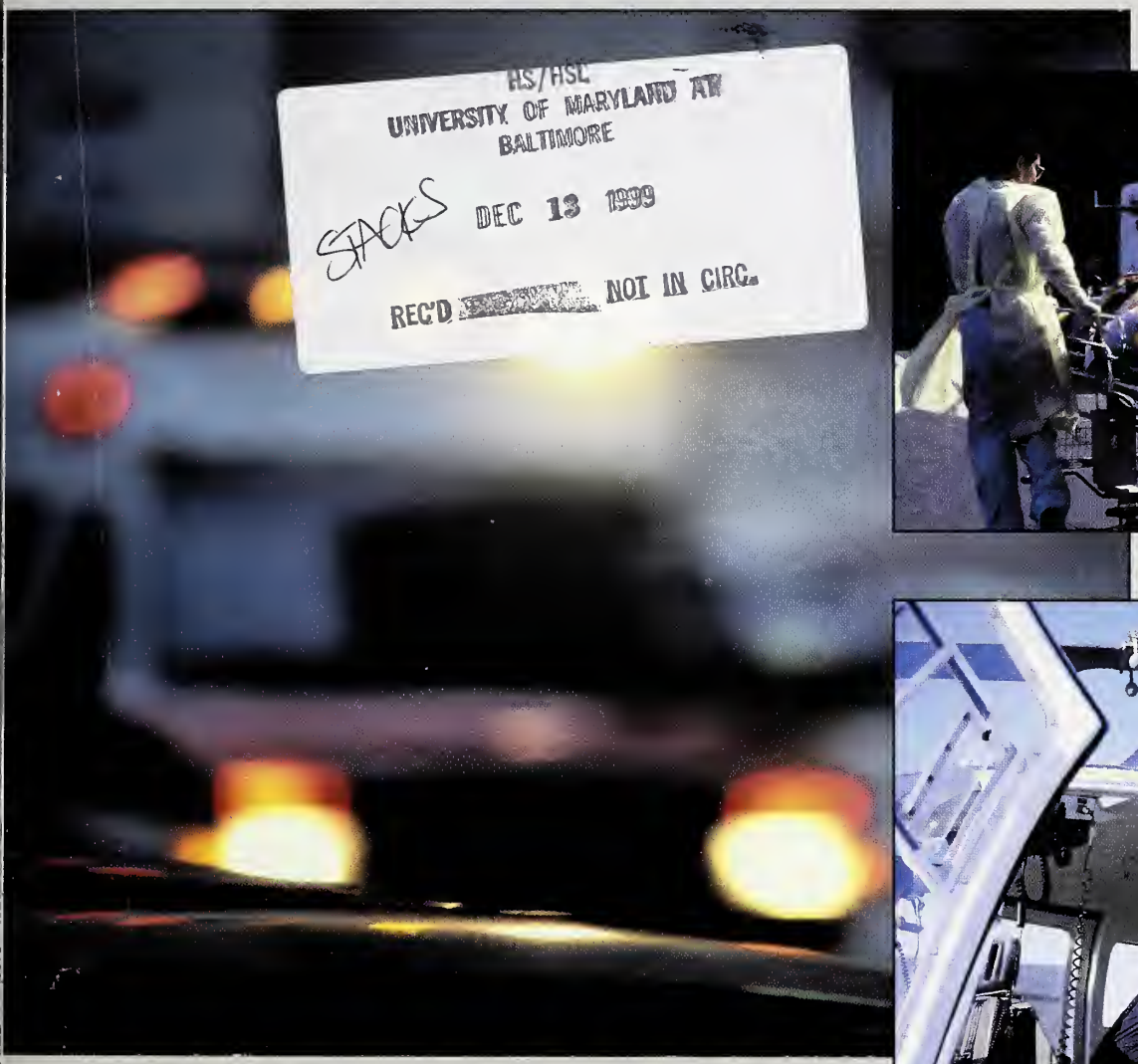

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Thomas C. Meyer, MD

Editorial

Examining Trauma Care in Wisconsin and More

by Thomas C. Meyer, MD, WMJ *Medical Editor*

I have some focused and some random thoughts for this theme issue relating to trauma in Wisconsin.

First, Rich Roberts, MD, provides a progress update on the firearm safety initiative and the status of the CHILD SAFE program, which were started by the SMS during Dr. Roberts' tenure as President. In his guest editorial he reiterates the view that this is a public health issue in which the medical profession should remain constantly active. His editorial is supported by Milne and Hargarten's interesting study on the availability of extrinsic handgun locking devices in the Milwaukee area from handgun dealers and discount chains (p 26). The handgun purchaser can obtain some sort of locking device from any of these merchants, but there is variation in the type of safety locking device that is available from the various gun stores. For the uninitiated, the types of devices available are worth reviewing.

Doctor Travis and his colleagues report their findings relating to hospitalizations associated with vehicle injuries in Wisconsin (p 35). The study provides baseline data upon which further studies may very well be based. While the authors point out their study's limitations, they do provide data allowing for testing of the hypotheses as well as some pearls — the addition of 500,000 hospitalizations and 5 million emergency room visits annually — to the well known 50,000 deaths from motor vehicle accidents.

Doctor Stremski's article (p 30) advocating greater use of the Wisconsin Poison System left this reader with the view that parents of young children should add 1-800-815-8855 to the list of emergency numbers that they have next to their telephones — or on the back of their cellular phones!

The abstracts from the WReN meeting and those from the Wisconsin Chapter of the ACP-ASIM are always welcome in the *Journal* — albeit 12 months after the event in this case — if only to scan the titles and get a taste of the wide range of thought and number of inquiries going on in busy primary care practices and academic centers. Each of us will surely find one or several abstracts of interest. My favorite for this series is Dr. Hankey's frustration at his inability to find any agreement in the literature as to what "comprehensive" (as in comprehensive care) really means (p 43). However, I salute him for deciding on his own definition and then looking at his own clinic's performance within that definition.

The random thoughts?

- Pride in the fact that Cathy De Angelis has been translated from the editorship of the Archives of Pediatrics to the editorship of *JAMA*. Doctor De Angelis spent several years (1975 - 1978) on the faculty of the University of Wisconsin before going on to a stellar career at Johns Hopkins.
- Thanks to some generous contributions *WMJ* received earlier in the year and the fact we've been able to tighten our belts a bit, we will be publishing seven issues of *WMJ* this year instead of the six originally planned. In December, we will examine the state of women's health in Wisconsin.
- Finally, the Editorial Board met recently and made a number of interesting and useful decisions, about which I will elaborate later. One particularly pleasing decision, however, is the fact that the *WMJ* will publish several issues next year as a 10-year follow-up of "Healthier People in Wisconsin." A 23-person committee, with the assistance of more than 100 others, spent 1989 developing this report, which is an explicit public health agenda for the 10 years just passed. We will look at successes and failures in trying to meet the goals in such areas as communicable diseases, chronic disease prevention and control, injury prevention and women's and children's health.

And, as always, we encourage you to sharpen your pencils and let us know how we're doing. We look forward to your input.

"There is no danger of developing eyestrain from looking at the bright side of things."

Anonymous

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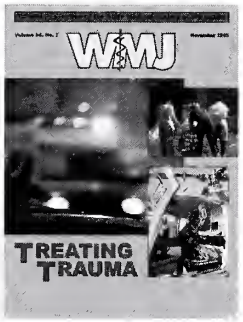

COVER THEME TREATING TRAUMA

Car crashes, gun shot wounds, sports injuries, burns. The incidents that place patients in emergency rooms and trauma centers throughout Wisconsin remain fairly constant. But, thanks in part to advances in technology and ever-increasing knowledge about best patient care, trauma treatment today is very different than it was 20 years ago.

Cover design by Kendi Parvin, *WMJ* Managing Editor

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The *WMJ* (ISSN 1098-1861) is the official publication of the State Medical Society of Wisconsin and is devoted to the interests of the medical profession and health care in Wisconsin. The managing editor is responsible for overseeing the production, business operation and contents of *WMJ*. The editorial board, chaired by the medical editor, solicits and peer reviews all scientific articles; it does not screen public health, socioeconomic or organizational articles. Although letters to the editor are reviewed by the medical editor, all signed expressions of opinion belong to the author(s) for which neither the *WMJ* nor the SMS take responsibility. The *WMJ* is indexed in Index Medicus, Hospital Literature Index and Cambridge Scientific Abstracts.

Send manuscripts to *WMJ*, 330 East Lakeside St., Madison, WI 53715. Instructions to Authors are available at the SMS website: www.wismed.com, or contact Terri Weaver at SMS 1-800-362-9080.

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Second Degree Burn from a Toe Warmer

During a physical examination on a 65-year-old man who has a history of IDDM with vascular complications, I noted a burn on his right shoulder. He had recently been troubled by pain from a rotator cuff strain in that shoulder, and when questioned about the burn it transpired that he had placed a shoe insert, designed for warming the feet, on top of his undershirt with the self adhesive strip. Over a two hour period this pad developed sufficient heat to cause a 1 cm vesicle with a 1-2 cm area of surrounding erythema.

Predicted temperature, according to the package, when used as directed, is 100°F with a maximum of 107°F. Also noted is, that if not used properly, the warmer could achieve higher temperatures and cause burns. It is to be used only in the shoes where oxygen would be restricted. Heat is produced by the interaction of the ingredients, "iron, water, activated carbon and salt" with oxygen.

It is not clear whether the patient, who had undergone multiple laser treatments for his retinopathy, was able to read the small print warning. He could be credited for his creative treatment for shoulder strain, but patients, and especially diabetics, should be aware of the complications of this type of heat therapy.

Steven G. Hammer, MD, Waukesha Health Care-Barstow Center

Praise for Westman Dialogue

We want to congratulate you on your highly entertaining and enlightening dialogue in the *Wisconsin Medical Journal* ("You're My Father, Not My Patient", *Westman E, Westman J, WMJ*, Vol. 98:4, 12-14)!

Not only did you show the technological knowledge of the younger generation, and the stubborn persistence of the older, but you also showed two curious and adaptive minds *actually talking through* a problem, not a common occurrence. We only wish that the patients and the managers of health care could have such communication. And who is the more correct of the two Westmans, the better doctor? The obvious answer is both. Each is right, and they're at their best in conversation.

Mary Alice Houghton, MD, and William J. Houghton, MD

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Joanne Selkurt, MD

Physician Citizen of the Year

Joanne Selkurt, MD, Emerses Herself in Community

by Steve Busalacchi, Director, News & Information

"Her energy is just boundless," says one of the many appreciative fans of SMS member Joanne Selkurt, MD, of Whitehall.

Doctor Selkurt received the State Medical Society of Wisconsin's Physician Citizen of the Year award during a ceremony in July at Tri-County Memorial Hospital and Nursing Home.

"This (award) is no surprise given your tremendous contributions to the community," said Jeff Thompson, MD, Gundersen Lutheran executive vice president, congratulating Dr. Selkurt at the ceremony.

Doctor Selkurt, a pediatrician, has practiced in Trempealeau County for more than two decades. During that time, she has volunteered her time and expertise for a myriad of humanitarian efforts. For example, back in 1983, before there was a car seat law in Wisconsin, Dr. Selkurt helped raise funds to provide free car seats for toddlers.

"It just made sense to protect the kids. They became flying missiles in the vehicle," Dr. Selkurt said.

Her commitment to children is not limited to the borders of Whitehall or those of the United States, for that matter. She and her husband, W. Bradford Martin, MD, also an SMS member, have cared for children from Nicaragua in their home, while they received medical care unavailable in their own country.

Doctor Selkurt's involvement in the Save the Children Program, is one of the many reasons Connie Przybilla, RN, nominated her for the SMS award. Przybilla, who is Assistant Director of Nursing at Tri-County Memorial Hospital, has worked with Dr. Selkurt on many occasions over the years.

"She cares about people. I don't know how else to explain it," Przybilla says. "Awesome," is the word Przybilla uses to describe Dr. Selkurt's commitment to the community.

"When I say community, I don't just mean Whitehall or the state of Wisconsin. I mean the whole nation and the whole world." Doctor Selkurt's activities also include volunteer work for women's abuse organizations, family planning services and the county's cancer control program.

"When you live in a small community, you just become part of it," Dr. Selkurt explains. "I obviously enjoy doing these things. It's a chance to be part of something."

In her free time, Dr. Selkurt enjoys handcrafts, leading the Girl Scouts program and helping with the children's choir at Our Savior's Lutheran Church.

"I wish we could clone (Dr. Selkurt)," says Przybilla with a chuckle. "I bet a lot of people would like have her in their community."

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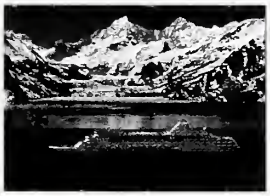

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Welcome New Members

The individuals listed below were recently elected to SMS membership by their County Medical Societies. We are pleased to welcome them to the SMS.

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Thomas W. Chuprevich Dos, MD
Scott M. Hunt, MD
Bhramarapurna Vani Kodali, MD
Geetha Murthy, MD

Dane
Todd J. Arndt (S)
Paul K. Branch, MD
Renee E. Burk, MD
Philip R. Carlson, MD
Linda K. Cunning, DO
Bermans Jamil Iskandar, MD
Steven Lim Leh (S)
Dennis P. Lund, MD
David G. Richards, MD
Reetu Sharma (S)
Susan E. Skochelak, MD
Bonny Lyn Whalen, MD
Xiang-Yan Yi, MD

Eau Claire-Dunn-Pepin
Janet Lapid Bijwadia, MD
Jeffrey R. Shepich, MD
Clark L. Williams (S)

Fond du Lac
Robert V. Nagle, DO

Green
John F. VanWoert, MD

Iowa
Pamela K. Rice, MD

La Crosse
David L. Geske, MD
Fadi Z. Ghandour, MD

Manitowoc
Lynn M. Baatz, MD
Juan Diaz, MD
Cheryl A. Martin-Foster, MD
Michael B. McCormick, MD

Marathon
Pablo Hernandez Abrego, MD
Amit Biswas, MD
Thaddeus J. Krolicki, MD

Milwaukee
Bhupinder Bolla, MD
Jesse Jon Borman, MD
Joseph Chen, MD
Dwayne K. Crabtree, MD
Magdalena Flejerowich, MD
Leslie M. Gimenez, MD
Kenneth A. Hahn, MD
Mario Kapetsonis, MD
Erika R. Ketteler, MD
Shiva Lalezarzadeh, MD
DyJerlynn Charriet Lampley, MD
Kavita Mundey, MD
Denis A. Ostrovskiy, MD
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Enas L. Pruitt, MD
Cheryl L. Railing-Punsel, DO
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Joseph W. Shea, MD
Andrew D. Simon (S)
Timothy W. Westlake, MD

Monroe
Farhat Abbas Khan, MD

Oneida-Vilas
Thomas H. Simpson, MD
Paul E. Smith, MD

Ozaukee
Michael J. Cotugno, MD
Brian E. Flanagan, MD
Leeor B. Peleg, DO
Jocko R. Zifferblatt, DO

Polk
Peter J. Quandt, MD

Racine
Lynda Phillips Moses, MD

Rusk
Robert A. Nogler, II, MD

Sheboygan
Roland Pascasio Moreno, MD

Trempealeau-Jackson-Buffalo
David J. Bardsley, MD
Richard Rogge, MD

Vernon
Aret Y. Kahyaoglu, MD

Washington
Darren Patric Corteen, MD

Waukesha
Ann Meier, MD

Winnebago
Ammar Alzoubi, MD
Davis Cheng-Yu Tsai, MD

Wood
Eva T. Matanguihan, MD
Lisa Lyn Olson, MD
Michael E. Spieth, MD
Shee-Chang Tang, MD

(S) designates medical student membership

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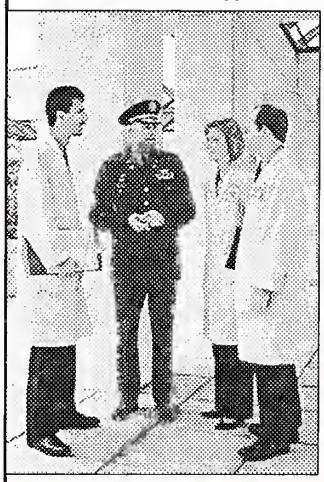

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In Remembrance

Kerr, J. Christopher, MD, 40, of Cumberland, passed away August 18, 1999 as a result of injuries suffered in a bicycle/truck accident. He served in the US Air Force as a weather equipment repairman before obtaining his medical degree from the UW-Madison School of Medicine. He reentered the USAF, serving for seven more years, including a three-year residency in family practice at the USAF Hospital at Eglin Air Force Base, FL. He moved to Cumberland in 1996 and practiced family medicine at the Mayo-Midelfort Clinic in Barron.

Doctor Kerr is survived by his wife, Anita; three sons, Benjamin, Alex and Stefan, of Cumberland; his parents, James and Mary Kerr, of Germantown; his brother, Michael, of Merced, CA; and two sisters, Quinn, of Oshkosh and Monica (Jim) Lane, of Oviedo, FL; and grandmother, Bonita Kerr, of Oshkosh.

Meyer, Kilian H., MD, 85, of Richland Center, passed away August 31, 1999. He earned his medical degree from Northwestern University Medical School. A family practice physician, Dr. Meyer served his internship at Passavant Hospital and his residency at Columbia Hospital in Milwaukee.

After serving in the US Army during World War II, he practiced medicine in Richland Center from January 1, 1946 until retirement on August 31, 1983. During that time he delivered over 4,000 babies, served on the SMS Maternal and Child Health Committee for nine years, and was a member of the 1991 SMS 50 Year Club. He was a founding member of the Richland Medical Center and served as its president for three years. Doctor Meyer was president of the Richland County Medical Society, and chief of staff at Richland Hospital for numerous terms.

Doctor Meyer is survived by his wife, Mary Catharine, of Richland Center; his children, Kilian Dennis, of Richland Center, Francis (Patricia), of Virginia Beach, VA, James, of Eugene, OR, Mary Ann, of St. Paul, Kevin, of Girdwood, AK, Mark (Nancy), of Anchorage, AK, Maureen (John) Almquist, of Kaukauna, and Zachary (Karen), of Inver Grove Heights, MN; 12 grandchildren; and four great-grandchildren.

Rakhmilevich, Helen G., MD, 35, of Lake Mills, passed away on September 23, 1999 as the result of an automobile accident. She received her medical degree from the First Moscow Medical Institute in Moscow, Russia and completed a residency in internal medicine there. Her family came to the United States in 1990. She completed a three-year residency at the University of Wisconsin Medical School in Milwaukee before moving to Lake Mills in August 1998 to become the first female doctor in Lake Mills history. She was a member of the Institute of Divine Metaphysical Research, Jefferson County Medical Society and the American College of Physicians.

Doctor Rakhmilevich is survived by her husband, Alexander; two children, Tanya and Mark, all of Lake Mills; her parents; a brother, Boris (Ludmila) Merkin, of Smolensk, Russia; and a sister, Olga (Alexander) Dudnikova of Moscow, Russia.

von Heimburg, Roger L., MD, 68, of Green Bay, passed away September 22, 1999. He earned his medical degree and served his internship at Johns Hopkins, Baltimore, MD, and completed his surgery residency at the Mayo Clinic, Rochester, MN. He served in the armed forces as a Lieutenant USNR, 1956-1958.

Doctor von Heimburg served as SMS President from 1990-1991, as a member of SMS Board of Directors from 1980-1989, and as Chair and Vice Chair of the SMS Board of Directors from 1983-1987. He was President of the Brown County Medical Society in 1986, President of the Wisconsin Chapter, American College of Surgeons from 1988-1990, and served as Chair of the State of Wisconsin Office of Health Care Information Blue Ribbon Task Force on Alternatives to the Tort System. He was Diplomate, American Board of Surgery; Fellow, American College of Surgeons; and was in private practice in Green Bay from 1964 until his retirement in 1994. He also contributed articles to professional medical journals and was listed in Marquis *Who's Who*, including *Who's Who in America*, *Who's Who in the Midwest* and *Who's Who in Science and Medicine*.

Doctor von Heimburg is survived by his wife, Mary J. "Toppy", and his children, Mary D., of Green Bay, and Donald, of Madison.

AMA Awards

The SMS member physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations.

Carolyn Peterson Butler, MD
James W. Jefferson, MD
Jeffrey A. Quitman, MD
Thomas Screnock, MD
Joseph Stoeckl, MD

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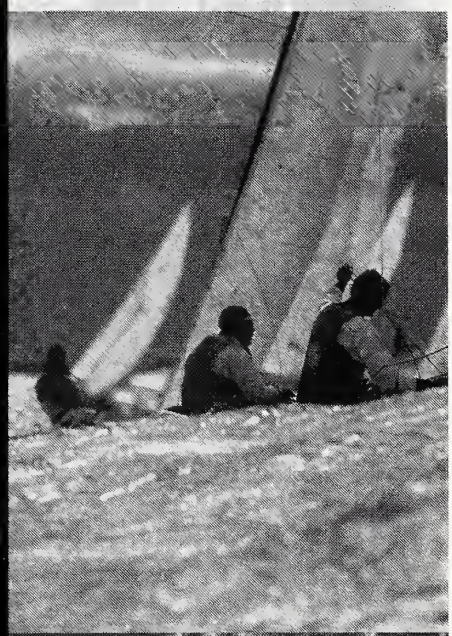

EOE M/F/H/V

Ayaz M. Samadani, MD

Guest Editorial

Reducing Trauma Through Organ and Tissue Donation Education

by Ayaz M. Samadani, MD, SMS President-Elect

The sirens roar as they approach the building while red lights reflect off every window of the hospital. The paramedics push through the doors with a blood-soaked patient and his family close behind. The emergency room is chaotic. The physicians do their best to revive the young man, but to no avail. Silence.

Every hospital has hundreds of stories to tell about trauma. Every doctor has been witness to trauma in one way or another. But trauma is more than a physical state. It can be an emotional shock—for the victim and his family.

When such an event occurs, my hope is that organ and tissue donation is discussed with the family. Actually, my bigger wish is that the discussion has already taken place with the patient and his doctor long before he was escorted into the emergency room—making the decision of organ and tissue donation less traumatic for the victim's family and the physician.

Next year, I will become the 147th president of the State Medical Society of Wisconsin. I see this an opportunity to focus on a theme of organ and tissue donation. Specifically, I want to educate colleagues about the importance of discussing organ and tissue donation as part of their everyday practice routines. I'm not convinced this is being done on the level that is needed in order to alleviate the problem of organ and tissue donor shortages. There is much work to be done with this campaign, which is why I have already started organizing my year ahead.

There are few in the medical profession these days who are not aware of the importance of organ and tissue donation programs. Those of us who have witnessed the anguish of a patient, or a family member or friend waiting to be the recipient of the ultimate gift – life – are perhaps more aware of the need for more people to become involved in an organ or tissue donation program.

In the United States we are fortunate that there are many programs already in place to help those who need an organ or tissue to continue to live. Now we need to take the next step and volunteer to become a potential organ or tissue donor and encourage others to do the same.

For quite some time now I have felt that the health care provider and the public need to have heightened awareness of end organ disease and failure. We need more people to become involved in the organ and tissue donation program. Currently there are approximately 68,000 people waiting for an organ or tissue and the list is growing. Many on the waiting list die each day while almost 5,000 potential donors do not have the opportunity to donate- simply because they are not asked. However, we can change this alarming statistic. Recently, at the request of John Chapin, Administrator, Wisconsin Division of Public Health, the SMS hosted meetings of the Wisconsin Organ and Tissue Donation Coalition. The Coalition consists of organizations throughout the state that share one common goal: to increase the percentage of organ and tissue donations in the state. Some members include the State Bar of Wisconsin, Wisconsin Health and Hospital Association, UW Organ Procurement Organization and the Wisconsin Donor Network, among others.

The Coalition has established two objectives. The first is to establish an organ and tissue donor registry in Wisconsin. The second is to increase health care provider and public awareness of organ and tissue donation. It is the latter which I hope my physician education campaign will positively affect.

I will continue working with the Coalition to make sure my presidential theme compliments their efforts. I hope my connection to and communication with physicians will help the Coalition achieve its objectives. I look forward to addressing the members of the State Medical Society, in more detail, at the April, 2000, SMS Annual Meeting. Until then, I will be busy crafting my agenda for next year. I encourage you to contact me if you have an interest in this physician education campaign. Working together, we can advance the health of the people of Wisconsin.

Doctor Samadani is president-elect of the State Medical Society of Wisconsin. He is a family practice physician in Beaver Dam, and is chair of the pediatric department of Beaver Dam Community Hospital.

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Richard G. Roberts, MD, JD

Lynn Sherman

Guest Editorial

Preventing Trauma Through CHILD SAFE

by Richard G. Roberts, MD, JD, and Lynn Sherman

Stories of children hurt or dying as a result of firearms cry out to us over the radio and television airways on a regular basis. Violence in the school threatens the security of all families. Even the most skeptical have begun to review current firearms laws in an effort to make our schools and homes safer places for children.

For many years health professionals have seen the results of guns not being properly locked or secured safely away from children and suicidal teens. Having fewer unlocked and unsecured guns for adolescents to access can make all the difference in a young person's future.

The State Medical Society has taken the lead in promoting this message. Over the years, the organization has adopted strong, pro-safety policies on firearms, including support for legislation requiring that trigger locks be sold on all firearms purchased, fingerprinting purchasers of handguns, slowing access to handguns by explicitly requiring a waiting period to allow for an effective background search prior to their purchase, and prohibiting the manufacture and sale of handguns with barrel lengths of less than 4 inches. In addition, since 1994, the State Medical Society has been actively involved with CHILD SAFE, a foundation dedicated to the prevention of childhood injuries and deaths — particularly due to firearms — through community initiatives and public education.

The program is a major success. Since its inception, more than 30,000 trigger locks have been distributed. Several county medical societies have been awarded grants for gun safety education and trigger lock giveaways. Many local gun clubs, county medical societies, hospitals and civic groups have also sponsored hunter and firearm safety programs around hunting season. And physicians have included gun safety conversations as part of their everyday practice routines. By simply asking patients if there are guns at home, if those guns are secured, and if patients feel safe, physicians are helping to change tragic statistics.

Beginning on page 26, authors Stephen Hargarten, MD, and John Milne, BS, explain that trigger locks, as one of several available safety devices, have been the focus of discussions on ways to reduce firearm injuries. While the effectiveness of trigger locks has not been scientifically analyzed in Wisconsin, physicians and parents have anecdotal evidence that firearm safety programs and information provided to patients by their physicians can make homes and communities safer for children. CHILD SAFE and physician involvement with this issue remind us that firearm safety is a public health issue and not just one of politics or personal rights.

Each fall, CHILD SAFE airs public service announcements (PSAs) on radio and television encouraging firearm safety in Wisconsin homes. This year, the Milwaukee firm of Hughes, Ruch and Murphy produced a new PSA on a pro bono basis for CHILD SAFE. The PSA's playful tone and strong message point out that because all children are curious and get into almost everything, it is important to secure all guns and use a trigger lock. These PSAs ran the first two weeks of November and will air again the first two weeks of December.

Regional Blue Cross & Blue Shield offices will also be holding trigger lock distribution events. The CHILD SAFE board is especially grateful to the Board of the United Wisconsin Services Foundation and to Tom Luljak, Director of Corporate Communications, Blue Cross & Blue Shield United of Wisconsin, for their long term support and commitment to CHILD SAFE.

In addition to promoting gun safety, CHILD SAFE provides matching grants for bike helmet programs, car seat check events, school violence prevention programs and other projects that can unite communities to help decrease childhood injuries in Wisconsin.

For more information, contact Eric Ostermann, CHILD SAFE executive director, at 800-762-8970.

Doctor Roberts is president-elect of the American Academy of Family Physicians. He is a professor in the Department of Family Medicine at the University of Wisconsin Medical School and practices family medicine in Belleville. Ms. Sherman is senior policy analyst for the State Medical Society of Wisconsin.

Technology Opens New Doors for Trauma and Care

By Marc Kennedy, special to WMJ

If anything has changed in trauma care, it has been the nature of motor vehicle injuries — mainly through installation of better seatbelts and airbags — that have helped reduce the severity of injuries as well as deaths.

"We're seeing significant changes in car crashes over the last five years," said John Weigelt, MD, vice chairman of surgery and chief of the division of trauma and critical care surgery at the Medical College of Wisconsin. "Many more people are surviving when using restraints and with airbags. They end up having a different set of injuries nonetheless, but still, this is a positive change."

Although more patients survive thanks to these preventative safety devices, many still need care for blunt force internal injuries. Historically, trauma professionals would wheel the people into the operating room as soon as they hit the hospital doors. But recent experience has shown that many of these patients recover without surgery, as long as they are monitored and managed appropriately.

"We are finding that many patients with spleen and liver damage are doing well over time without surgery," said Monica Guyotte, MS, RN, Trauma Nurse Coordinator at UW Hospital and Clinics. "This is well documented." New technology helps the medical professionals make these types of calls effectively, added Dr. Weigelt.

"Ten years ago, these people were taken right into the operating room," he said. "Currently, we're managing these patients based on new technology in diagnostics and resuscitation and watching closely how the organ responds. About 80% to 90% of patients with spleen and liver damage can be managed non-operatively. This means no surgery, less patient trauma, less use of blood products, less time in the hospital for the patient to recover from surgery, and a faster return to normalcy.

"It takes awhile to learn and be comfortable with this type of management, but it works. It's being spearheaded by Level 1 trauma centers, because it takes a team of experts using the latest radiological equipment and CT scanner to make it happen; we even use angiography to stop bleeding vessels. By putting together these resources we try to avoid surgery." There are two Level 1 Trauma Centers in Wisconsin, one at the University of Wisconsin Hospital and Clinics in Madison, the other at Froedtert Hospital in Milwaukee. *(See sidebar p. 14.)*

> *"Ten years ago, these people were taken right into the operating room. Currently, we're managing these patients based on new technology in diagnostics and resuscitation and watching closely how the organ responds. About 80% to 90% of patients with spleen and liver damage can be managed non-operatively. This means no surgery, less patient trauma, less use of blood products, less time in the hospital for the patient to recover from surgery, and a faster return to normalcy."*
>
> **John Weigelt, MD**

Doctor Weigelt explained that using the same type of diagnostic technology can help patients with brain injuries as well.

"A lot of what happens to the brain is injury due to less-than-optimal monitoring after injury occurs. We now have new technology in Intensive Care to monitor what is happening inside the brain using catheters to monitor blood flow and the vascular supply."

Advances in Treating Pelvic Fractures

Pelvic fractures due to blunt trauma have traditionally posed problems.

"High-speed collisions in which you have an intense energy transfer, a combination of speed and mass such as a car hitting a bridge abutment or a motorcyclist flying over the handlebars and hitting the pavement, can cause serious injuries," said Guyotte. "These 'open book' or 'butterfly' type of injuries with both anterior and posterior fractures can damage arteries deep in the pelvis that are difficult to treat surgically. To treat these, a team will snake a catheter into the femoral artery using a fluoroscope to help position it, and to see in real-time how they're doing. They use a metal coil on the end of the catheter and can basically glue and embolize the vessel to stop the bleeding."

"Having the right team of experts to respond quickly to extensive pelvic damage is important," Dr. Weigelt said. "I will get involved in a case like this to help stop the bleeding and work with other surgeons and radiologists. Once the patient is stabilized, the

Taking Trauma Care to the Next Level

By Marc Kennedy, special to WMJ

Stephen Hargarten, MD, MPH, remembers his first heart attack patient when he was in an emergency room as a medical student. "We didn't monitor him, we didn't administer medication, we basically did nothing." But that has changed considerably in the 20 years since.

"During the 1970s, the emergency room was literally just that—a room," said Dr. Hargarten, Professor and Chairman of Emergency Medicine at the Medical College of Wisconsin, and also a nationally-recognized injury prevention and control advocate and researcher.

"It's very different today. Now we have four treatment areas within the ER that offer a total spectrum of care. We offer urgent care, ER care, critical care and soon will be offering focused, or observation, care. This gives us a latitude and spectrum of treatment 24 hours a day, seven days a week. We can look at a sprained ankle or an acute heart attack. It's terrific for the community to be able to go to one place for this spectrum of care."

Technology has improved, as have drugs and the understanding of how to use them effectively, added Dr. Hargarten. "We have better systems of care, with well-trained EMTs, with air-med and ambulance systems in place to get patients quicker to the appropriate hospitals.

"Now a heart attack patient can be diagnosed out of the hospital, an EKG can be done on the way to the ER," he said, "and I can have the right medication ready for the patients when they get here. During longer transport times, we can have the paramedics give the medicine. These tremendous changes benefit patients. They don't suffer the long-term effects they might have without these early interventions. They can go on to lead productive lives."

There is a national trend toward establishing Level 1 comprehensive care trauma centers, based on guidelines verified by the American College of Surgeons Committee on Trauma (ACSCOT). Currently, Wisconsin has two such trauma centers, one at University of Wisconsin Hospital and Clinics in Madison, the other at Froedtert Hospital in Milwaukee. A Level 1 Trauma Center is reviewed every three years by an outside team of experts who examine how care is delivered.

"A trauma center like the one at UW or Froedtert is different from a community hospital," said Monica Guyotte, MS, RN, Trauma Nurse Coordinator at UW Hospital and Clinics. "We are organized so that a large variety of different specialists are available right away. The focus is on functional outcomes and rehabilitation here. It's a comprehensive approach covering various aspects, from the treatment of the initial injury, to rehabilitation, return to the workforce, social work support, disability, as well as access to an array of medical specialists such as pediatricians, radiologists, etc."

Providing advanced and comprehensive care is just one of the missions of these trauma centers.

"A Level 1 center is a patient care resource for the community and region, but also has a mandate for education and outreach concerning the whole spectrum of injury. Compliance with these standards is voluntary, as there is no state mandate for quality of care for the injured," says John Weigelt, MD, vice chairman of surgery and chief of the division of trauma and critical care surgery at the Medical College of Wisconsin. Doctor Weigelt is a past chairman of ACSCOT, currently chairs several of its committees and is leading the process to rewrite its trauma center guidelines.

While there is currently no state mandate for quality of trauma care in Wisconsin, this is changing. The legislature has established a Trauma Advisory Committee to work on the regulations that would provide the basis for such guidelines, including the capabilities and locations of medical centers throughout the state, according to Guyotte.

"We are also beginning to develop a statewide trauma system to match responses to the needs of patients," said Guyotte. "Illinois has had a system for years. It's a big project. There will be a state trauma advisory committee to write regulations. "The system would spell all of this out," said Guyotte. "The Emergency Medical Services person first on a scene would be able to quickly determine where best to transport the injured person based on medical need and location of the nearest medical center with the appropriate range of care available. The legislature has called for a report on the requirements of such a system by 2001, but there has yet to be funding designated for this."

orthopedist comes in and reconstructs the pelvis with plates, pins and screws. With the help of the radiologists who can create an image of the pelvis in 3D, the surgical team goes in through both the front and back to get to the right part of the pelvis. It's pretty amazing."

A few years ago, this procedure was not possible, and patients with these types of injuries did not survive.

"The mortality rates from these butterfly type of pelvic fractures are from 5% to 20%, mainly because the patient ends up bleeding to death," added Dr. Weigelt. "It is a major problem."

Steroids and Spinal Injuries

There may be some confusion over how to best treat spinal cord injuries among smaller community clinics and EMS personnel around the state, according to Dr. Weigelt.

"For patients who show signs that they have had some damage but not a total transection," the earlier you start steroids the better," advised Dr. Weigelt. "If we get a phone call from an EMT and they say they want to begin to transfer the patient to the trauma center, there is a rigid protocol for delivering steroids. They need to do it on-site or in a nearby clinic as quickly as possible."

Brain injuries are another story.

"There are some misperceptions that steroids are good for brain injuries," Dr. Weigelt said. "I know that in Minnesota I was seeing patients after initial treatment for brain injuries who had been given steroids and had problems. Steroids depress the body's immune function, so if they are not given appropriately, it can increase the infection risk."

Research at Froedtert and MCW is focused on treading this thin line.

"We've been doing a lot of work trying to find the right agents for the initial care of trauma patients, in the first week or so," he continued, "compounds that will help the immune system recover more quickly and prevent complications from infection. Any trauma patient who is bleeding with low blood pressure and has gone into shock needs blood as well as agents to bolster the immune system. We are investigating some inhibitors of blood coagulant cascades, as well as inhibitors of inflammatory factors for platelets. We've looked at a cytokine, a specific inflammatory reactor. None of these have played out favorably yet. But we keep trying, constantly looking for a new magic bullet."

> *"Improving diagnostics and providing frontline people the ability to perform advanced procedures in the field when needed will further increase the effectiveness of rural trauma care."*
>
> **Dean Stueland, MD**

Burn Care Improving

Along with other areas of trauma medicine, burn care is improving continually.

"Level 1 Trauma Centers excel in treating burn victims," said Guyotte, "because we offer such a range of care: surgical, nursing, rehabilitation. We've got the whole array of specialists who are trained in dealing with difficult burn cases, and have seen them before. Long-term prognosis is improving for burn cases because of the expertise of trauma center staff."

The UW Burn Unit is using the latest types of treatment, such as skin substitutes. The unit brings together the various experts necessary to treat the array of problems associated with burns, including treating infection, and reconstruction and rehabilitation, according to standards set by national organizations like the American Burn Association.

Doctor Weigelt added that the frontline EMTs and community clinic physicians are also better trained in burn care, which helps patient outcomes.

"We know now the value of proper resuscitation, the need to intubate early, and to quickly transport the patient to a burn center, as well as the importance of getting fluids into them," said Dr. Weigelt. "The Parkland Burn Formula covers all this ground. If we do nothing else for the patient, we need to make sure they are adequately oxygenated, which is more important than giving an IV and starting them on fluids. Early airway management and having the right techniques and equipment is imperative."

Rural Trauma Poses Special Needs

Per capita, rural areas suffer roughly the same level of trauma as urban counterparts. But the nature of injury differs.

"In the country, we have unique injuries you don't normally see in larger city ERs," said Dean Stueland, MD, ER physician and Director of the Farm Medicine Center of the Marshfield Clinic. "Certainly in the central part of the state we see many more farming

and farm machinery related injuries.

Farther north, you might see logging and mining injuries. We still see a similar level of blunt trauma from auto collisions. For rural areas, time is such an issue for trauma. It's a matter of transportation, but also a matter of just finding the victims in time. You have a lot of ground to cover here.

For trauma in rural areas, Dr. Stueland said, helping to keep EMTs and clinic and hospital personnel up-to-date on life-saving techniques and technology is crucial.

"Getting frontline emergency personnel trained in airway control is extremely important," he said. "So is having access to new types of imaging devices: digital X-rays, CT scans, etc. Having these widely available really helps. A tool like teleradiology helps people figure out what is really going on, and this has made a difference as well. Improving diagnostics and providing frontline people the ability to perform advanced procedures in the field when needed will further increase the effectiveness of rural trauma care."

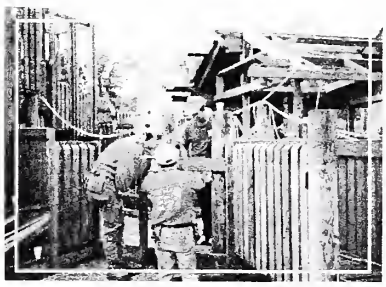
Another advance that has helped better address rural trauma cases is the ability to respond rapidly.

"With greater ability to intercept through ambulance or helicopter, we can get advanced care to the scene more quickly," said Dr. Stueland. "Satellite clinics located at strategic points also play an important role. But we have to make sure that the personnel at these sites have the best training possible and have the appropriate connections to more advanced ERs and trauma centers."

Telemedicine

As much as technological advances have positively affected emergency and trauma medicine in the last decade, experts believe that benefits of the rapidly developing telecommunications industry have just begun to reshape how medical professionals transmit and share information.

"I'm collaborating with several surrounding communities to make it easier for them to get them into our system and for us to get back to them," said Dr. Weigelt. "We work hard to get most patients back into their own community for rehabilitation once we treat the acute problems. This is an exciting area of telemedicine being developed today. If they are a mile away or 100 miles away, we want to be able to provide a distance follow-up. It is convenient and better for the patient to be in their own community getting routine assistance from their own health



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care provider. This is all part of the plan for a Level 1 Trauma Center to become more of a resource for both nearby and outlying communities.

"We're looking at developing a system in Milwaukee where smaller hospitals and providers could have immediate access to us to talk about a case. For this to happen we need to define what their capabilities are on the front end rather than at 2 a.m. when the case comes in. They can, if they need to, call and get answers. On the other hand, if they recognize that the injuries are already beyond their capabilities, they know they need to send the patient to a Level 1 Trauma Center."

The Future of Telemedicine

The technology for telemedicine exists now, or refinements are just around the corner. But there are other issues looming.

"One of the biggest problems is compensation for consulting via telemedicine," asked Weigelt. "This has become a big issue." While guidelines are scarce regarding compensating physicians for telemedicine work at the moment, rules and standards, as well as technology are being developed to help address another common problem of distance diagnosis and treatment — confidentiality of medical records.

"Confidentiality is the biggest question mark concerning using telemedicine," said Guyotte. "X-rays have been sent digitally from one office to another for a couple of years, mainly within a building complex or shared among satellite clinics with the primary medical center."

The next logical step is to enable a greater sharing of information electronically. But until the public is convinced

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that sufficient safeguards are in place, confidence over the confidentiality issue may waver. And the practicality of telemedicine has yet to impress some ER physicians.

"The jury is still out on that," said Dr. Stueland. "We've done some pilot studies, trying to do some visual monitoring. So far they haven't proven themselves. But in the long run, as the technology improves, telemedicine will probably make a difference. Presently, just being able to transmit imaging data has made a difference."

New developments continue to emerge.

"There is a new prototype being used in San Antonio, Texas," said Dr. Weigelt. "It's a TV camera that goes along with paramedics in the field. So you not only have radio contact but visual contact as well. It may sound cumbersome, but it isn't. I've seen the tapes from the ambulance. The question not answered is how many patients this would be useful for. It is easily transferred to the urban environment, but it is unknown in the rural environment."

Prevention Still the Best Medicine

Although the trends in types of incidents that place people in emergency rooms or trauma centers have not really changed, according to Dr. Weigelt, the process of addressing these injuries has.

"We want to aggressively be able to attend to those needs cost efficiently, in a patient-friendly way," he said, "and link them with a primary care provider for on-going care, hopefully in their own community. This is more conducive to rehabilitation and less costly. We look at ourselves as partners in providing acute care services 24 hours a day."

Prevention is ultimately the best medicine though, whether it is using seatbelts or putting trigger locks on guns.

"It's where you can make a substantial difference," said Dr. Stueland. "It can do so much and affect the lives of so many, and not spend a lot of money doing it. The line you hear often from professionals in the ER is that after a while, you get tired of pulling people out of the water. Somebody needs to tell them the bridge is out."

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Unique system examines firearm injury data

Looking Behind the Bullets

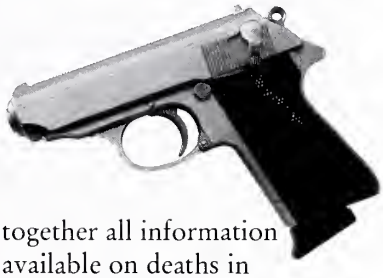
By Marc Kennedy, special to WMJ

Until a few years ago, policymakers who were making decisions about controlling firearm-related violence and injury were literally shooting in the dark when it came to using statistics to support their positions, according to Stephen Hargarten, MD, MPH.

"For example, the federal Crime Bill of 1994 addressed the issue of assault weapons and magazine capacities," he said. "We've looked at this bill and its effect in Milwaukee County. It has had no discernable effect. It's because this bill was enacted without accurate information."

Doctor Hargarten decided to start providing this data. He helped establish the Milwaukee Firearm Injury Reporting System (FIRS), which serves all of Southeastern Wisconsin. With a three-year $361,551 grant from the Joyce Foundation, he helped establish the nation's first FIRS Center in the department of emergency medicine at Medical College of Wisconsin in 1997. Its mission is to reduce firearm injuries and deaths in Wisconsin by collecting, researching and interpreting data related to firearm injuries and then reporting this information to policymakers.

"FIRS is a unique data-linked information center that puts



together all information available on deaths in the state due to firearms," explained Dr. Hargarten. "It links coroners' reports with law enforcement data and information from the State Crime Laboratory. This provides a comprehensive picture of the nature of firearm deaths, which policymakers can use to devise strategies to reduce these events."

So far, FIRS includes data on all firearm fatalities (homicides, suicides, unintentional and undetermined) from Milwaukee County since 1991 and data from seven southeastern Wisconsin counties since 1994. Many other states are interested in this system, as it is the first of its kind in the nation.

"It enables us to provide policymakers with real information, real feedback," said Dr. Hargarten. "Often firearm bills are enacted in a vacuum, as in the 1994 bill. We think that policies need to be tested and evaluated with accurate information that allows lawmakers to generate the best policy, or to evaluate its efficacy. Did a law work and have intended results? We are providing a robust set of data linked to the appropriate authorities.

"We've been able to help policymakers and the attorney general with information relating to barrel lengths," he added. "The data suggests that homicides are associated with short-barrel guns. So the attorney general proposed having special licenses that would affect the sales of these guns."

FIRS is also linked to the federal Bureau of Alcohol, Tobacco and Firearms, which provides information on where the gun involved in an injury or death was first purchased.

"This gives us a better understanding of the history of the weapon and the relationship to the event," said Hargarten. "Also, clerks of court are providing us with more detailed information on homicides involved with firearms."

The medical examiners from Kenosha, Milwaukee, Racine and Waukesha counties and coroners from Ozaukee, Sheboygan, Washington and Walworth counties are lead reporting agencies. The Center collects demographic information on the victim, as well as toxicological and anatomic findings, and any firearm ownership information, if available.

Then FIRS links the medical examiner/coroner data to information from law enforcement agencies on the firearm death, as well as demographics on perpetrators, weapon information and crime report data.

For Dr. Hargarten, gathering this data is a public health issue.

"This system gives us accurate information enabling us to accurately diagnose problems related to firearm injuries so we can discuss how to deal with it properly," he explained. "For major diseases, we don't make public health decisions based on inaccurate or fragmented data, but that's what we have been doing with firearms. Now we know that for most of Wisconsin, the problem with firearms is suicide, not homicide, although Milwaukee County has a large firearm homicide problem. And suicide isn't just one problem; it is a set of problems that have to be addressed individually—from the despondent elderly to impulsive teens. These are two very different problems that require two different sets of strategies. One size does not fit all."

Such information has public policy implications, but it also has practical applications that can provide health care professionals and family members guidelines to help prevent firearm injuries to patients and family members.

For example, said Dr. Hargarten, "We need to look at not just immediate needs of patients with mental problems, we need to check out the patient's home situation. Is there a firearm at the home? Is it locked up so that person cannot get their hands on it? Should it be removed from the home? For an older person who just experienced the recent death of a spouse, we need to ask, 'is there risk of depression, and is there access to a firearm?' You also need to ask the same questions concerning a clinically depressed, despondent teenager. How are firearms stored at home?"

Doctor Hargarten hopes the data FIRS generates will prompt family physicians, school counselors, social workers and relatives to consider these questions.

"The information is useful in helping us better understand the nature of firearm injury," he said.

The next step is for policymakers and health care professionals to use this information to mitigate violence and injury from firearms.

"Physicians can help reduce firearms injuries in their communities—whether rural or urban—by counseling their patients, asking whether they have a gun in the house and whether it is appropriately secured," Dr. Hargarten said. "They should have a targeted set of interventions for addressing issues that confront their patients. We need to be aware of risks, and intervene to ensure safe storage or removal of guns from the vicinity of those at high risk of suicide."

• • •

For more information contact: Firearm Injury Center, Medical College of Wisconsin Department of Emergency Medicine, FMLH, 9200 W Wisconsin Ave, Milwaukee, WI 53226; phone 414-257-5304; www.mcw.edu/fic.

Firearms Trends as Reported by FIRS

- Wisconsin's rate of firearm mortality was 37th among the 50 states in 1996.
- In 1996, 47% of all Wisconsin firearm fatalities occurred in Southeastern Wisconsin.
- Between 1994 and 1997, death rates in Southeastern Wisconsin from firearm homicides decreased from 6.5 to 5.4 per 100,000.
- In Southeastern Wisconsin from 1994-1997, 45% of firearm fatalities were suicides.
- In Milwaukee County from 1994-1997, suicides accounted for approximately one-third of firearm fatalities; in the 7 other Southeastern Wisconsin counties, suicides accounted for three-quarters of firearm deaths.
- Unintentional/undetermined firearm fatalities accounted for about 2% of all firearm fatalities in Southeastern Wisconsin for 1994-1997.
- Fatalities between 1994 and 1996 involving a handgun (of cases with firearm information) ranged from 97% for urban homicides, 75% for rural homicides, 68% for urban suicides and 58% for rural suicides.
- Urban and rural suicide rates for 15-24 year old males (16.0 and 13.5 per 100,000) were not significantly different.
- As education level increases, the proportion of homicide among all firearm fatalities decreases, while the proportion of firearm suicides increases.
- Milwaukee County homicide victims positive for alcohol decreased from 62% in 1991-1993 to 48% in 1994-96 ($p=.01$), and the percent positive for marijuana increased from 9% to 19%. ($p<.02$).
- In cases of firearm homicide/suicide where the firearm owner was known, the offender (suicide victim) owned the firearm 77.8% of the time.

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WISCONSIN MEDICAL Journal

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Basketball Injuries in a Rural Area

Thomas B. Prebble, MD, Po-Huang Chyou, PhD, Laura Wittman, Joseph McCormick, MD, Kimberly Collins, MD, and Thomas Zoch, MD

ABSTRACT

This study was conducted to determine the frequency and nature of basketball injuries occurring in a rural setting. More than 6000 patients with sports-related injuries presented to a rural emergency department between June 1, 1988 and June 1, 1994. Of these patients, 1189 (19% of the total) were injured playing basketball. A chart abstraction form was utilized to retrospectively review injuries noting demographics, types and sites of injuries, as well as referral and treatment plans. Approximately two-thirds (66.4%) of those injured were males, with most injuries (53%) occurring during school-related activities. Almost four-fifths (78%) of injuries occurred between the ages of 10 and 19. The ankle (33.1%) was the body site most commonly injured, followed in frequency by finger injuries (19.3%), sprains and strains, which accounted for the majority (55%) of injuries. The most common mechanism of injury was recorded in which no contact with other players occurred (37.4%). The vast majority (99%) of injuries were managed as outpatients. The majority of cases (72%) were expected to recover within 2 weeks. Similarities were noted regarding sites of injury and age of distribution of patients when compared to the previous studies.

INTRODUCTION

Initially conceived a noncontact sport, basketball has undergone a significant transformation since its inception. No longer a sport in which contact occurs inadvertently, basketball has become a game played by increasingly aggressive players who employ body contact to their advantage. The combination of the sport's gain in popularity and the current physical style of play has increased the likelihood of injury among participants.

Unlike sports in which players don protective gear, basketball is a game played with minimal protective paraphernalia.[1] Previous studies[2,3] have shown hip and knee injuries, followed by ankle and foot injuries, to be the most common type of injury occurring among professional basketball players. These studies also showed strains and sprains account for the majority of basketball-related injuries. Inflammatory conditions and contusions occur with lesser frequency.[4]

The purpose of this investigation was to evaluate the nature of both competitive and noncompetitive injuries occurring in a rural setting and to compare these findings with previous studies.

MATERIALS AND METHODS

The Marshfield Clinic is a multi-specialty group practice, comprised of approximately 400 physicians, located in Marshfield, Wisconsin. The Marshfield Epidemiologic Study Area (MESA) consists of 14 contiguous communities. With the exception of Marshfield, a town of approximately 20,000 inhabitants, the communities that comprise MESA are predominantly rural in character.

Over a 6-year time period, from June 1988 to June 1994, all patients with sports-related injuries were enrolled in a multi-sports study following presentation to the emergency department of St. Joseph's Hospital, which is adjacent to Marshfield Clinic. During this time period, information was collected on 6013 injury events.

Subsequently, during the second half of 1994, retrospective chart abstraction forms were completed to gather more detailed information on these injuries. Data collected included patient demographics, types and sites of injuries, as well as proposed referral and treatment plans.

RESULTS

Upon review of the medical records, we found that the 1210 injuries reported were related to 1189 unique injury events which occurred among 1010 basketball participants. Of these 1189 injuries, 986 occurred among patients who were residents of MESA. Roughly

Doctor Prebble is an emergency medicine physician at Marshfield Clinic and St. Joseph's Hospital, Marshfield, WI. Doctor Chyou is an epidemiologist and Ms. Wittman a statistical assistant with the Marshfield Epidemiologic Research Center of Marshfield Medical Research and Education Foundation, a Division of Marshfield Clinic. Doctor McCormick is a resident in orthopedics at the University of Colorado Hospitals, Denver, CO. Doctor Collins is a resident in pediatrics at Children's Hospital, Cincinnati, OH. Doctor Zoch is a staff physician and director of emergency medicine at the Theda Clark Medical Center, Neenah, WI. Address correspondence to Thomas B. Prebble, MD, Urgent Care, Marshfield Clinic, 1000 N Oak Ave, Marshfield, WI 54449.

31 of every 10,000 MESA residents per year were evaluated at the emergency department of St. Joseph's Hospital and met the criteria for inclusion in the study.

Demographics. Approximately two-thirds (66.4%) of the patients with basketball-related injuries were male. Almost four-fifths (77.8%) of those injured were between the ages of 10 and 19. Patients aged 20 to 29 accounted for another 12.1% of injuries. Two injuries were reported in children under age 5 and an additional 2 injuries were reported among patients over age 55.

School activities (n=629) accounted for the majority (53%) of injuries among those cases (n=1185) in which the location of play could be determined from the medical records. Ninety percent (n=567) of these injuries occurred at school during organized activities, including physical education classes (n=61), practices (n=236), or interscholastic competition (n=270). Thirty-four injuries occurred during intramural play or recess that was not organized. The circumstances concerning the remaining 28 school-related injuries are unknown. The frequency of injuries occurring in practice was similar to that occurring in games.

Common Types of Injury—Sprains and Strains, Fractures, Contusions, and Lacerations. Sprains were defined as ligamentous injuries without ligamentous rupture and differ from strains which were associated with tendon damage. Sprains and strains accounted for the majority (55.1%) of injuries encountered, most of these involving the lower extremity (Figure 1). Fractures and dislocations represented 217 (17.7%) of all injuries. Contusions, defined as soft tissue injuries or bruises, along with lacerations, accounted for 231 or 18.9% of total injuries. Other, less frequently occurring injuries included joint effusions, embedding of foreign bodies, overuse syndromes, and dental injuries. These accounted for a small percentage (8.3%) of injuries.

Location of Injuries. Among the injuries evaluated during the study, the ankle was the body region most commonly injured (394 cases, 33.1%). The knee was the second most common site of lower extremity injury, occurring in 129 or 10.8% of injuries. Finger injuries were the most common type of upper extremity injury encountered, occurring in 229 or 19.3% of cases. A breakdown of injury type for the most frequently injured body parts is shown in Figure 2.

Mechanism of Injury. The most common mechanism of injury occurred while playing alone or in situations in which there was no contact with another player (37.4%, n=425). Collisions or contact with other players accounted for 418 of observed injuries. The majority of 233 injuries in which victims were injured by inanimate objects, for which a specific agent was identified, involved contact with the ball itself. The remaining 113 injuries were caused by running, overuse syndromes, or by unspecified causes.

Figure 1. Basketball injuries: type of injury with site of injury for sprains

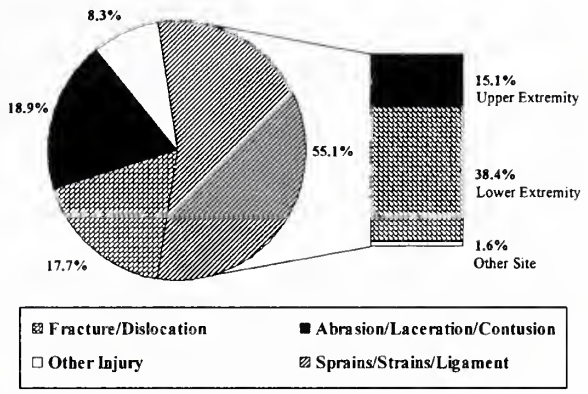
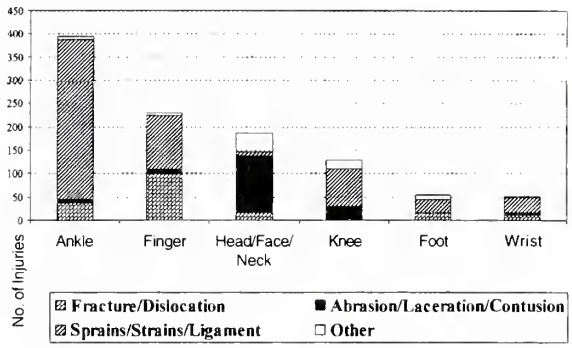


Figure 2. Basketball injuries: common sites of injury by type of injury.



Disposition. The majority of injuries required outpatient management. Eleven patients were initially hospitalized (1%), although 48 patients did require a surgical procedure at follow-up.

Most of the 1189 injuries (n=624, 52.5%) were seen in follow-up, either in Marshfield or at an outlying facility. In 47% (n=559) of cases, follow-up was not scheduled or did not occur for patient-determined reasons. When the patients were referred for follow-up, it occurred most frequently in the physical medicine department, followed by the orthopedic department.

The majority of injuries evaluated were minor, and it was estimated that, at the time of initial evaluation, recovery was likely to occur within 2 weeks in the majority (71.2%) of cases. One hundred fifty-two cases (12.8% of the total) were expected to require up to 3 months to recover. Only 3 patients were felt to require more than 3 months to recover.

DISCUSSION

Anatomically, the ankle was the region most frequently

injured among basketball players in this study. Among all sports injuries, ankle injuries were seen with the greatest frequency compared to other injuries in the emergency department setting.[5] It should not be surprising that frequent jumping, running, and change of direction associated with playing the game of basketball predisposes the ankle to stress which can be either acute or chronic in nature. It should be noted that falls account for the majority of ankle injuries (54%, n=213).

In addition to the ubiquitous sprain, basketball players may sustain fractures, overuse injuries, and tendon injuries. Various means have been utilized to reduce the frequency of ankle injuries, including the use of high-top basketball shoes (largely ineffective)[6] and the use of prophylactic bracing. Bracing has been shown to reduce the occurrence of ankle injuries without affecting performance, although acceptance of ankle braces or stabilizers by athletes has been spotty, perhaps because of concerns about decreased performance.[7]

Similarly, because of the nature of the game, wrist and hand injuries occur frequently, as noted in this study. Basketball players frequently have contact with the ball and require hand and finger skills that would preclude the use of protective gloves or hand gear.[8] Among hand injuries, trauma to the digits was observed to be more common than injuries to the carpal and metacarpal bones. Previous studies have shown that injuries to the proximal interphalangeal joints, including tendon injury and intra-articular fractures, were among the most common injuries occurring in basketball players. Among thumb injuries, the most commonly observed injury included metacarpophalangeal ligamentous injuries and fractures of the basal metacarpal joints.[8] In this study, 19.3% of cases with observed injuries involved the digits.

Knee injuries accounted for 129 or 10.8% of the 1189 injuries observed in this study. The incidence of knee injuries among basketball players, when compared to other sports, is felt to be high because of the stress placed upon the knee by jumping and cutting.[9] A previous study evaluating high school basketball injuries, presented at the National Athletic Trainers Association, revealed that 20% of players had at least one injury leading to a loss of playing time with approximately 10% of these injuries involving the knee.[10] Among American professional athletes, overuse syndromes predominate among knee injuries, with common injuries including patellar tendinitis and anterior knee pain syndromes.[11] Anterior cruciate ligament injuries which can occur as a result of deceleration and changes in direction, causing either internal or external tibial rotation, are common.[10]

In this study, 124 patients, or 10.4% of those treated, sustained injury to the facial region. It has been stated that in the United States, basketball is second only to baseball as the sport in which eye trauma and oral trauma are most likely to occur.[1] Other sports such as hockey and football, which utilize facial protective gear, are less likely to be associated with facial trauma. Serious head injuries appear rare, however, with only one of our 43 head injury cases requiring neurosurgical referral. Previous studies have suggested that the frequency of facial trauma related to basketball is increasing,[12] and others have recommended consideration of the use of protective eyewear and mouth guards.[13]

A previous injury study performed among professional basketball players came to the conclusion that basketball players are at risk for sustaining eye injuries, and that protective eyewear is indicated. Among these professional players, 5.4% of all injuries involve the eye, compared to the 1.4% incidence in this study. The majority of these injuries occurred in players not equipped with protective eyewear. As the majority of these injuries were caused by contact with opponents' fingers and elbows, the potential benefits of protective eyewear seem apparent.

Comparison of data from MESA to data from previous studies shows similarities in location of injuries with the ankles, fingers, and knees being the most common sites of injury. As might be expected, injuries occurred most commonly among those participants in the 10- to 20-year old age group and school activities accounted for the majority of injuries in this age group. Perhaps greater use of preventative measures, such as ankle braces, can reduce injury in this age group.

ACKNOWLEDGMENTS

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The Availability of Extrinsic Handgun Locking Devices in a Defined Metro Area

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ABSTRACT

Extrinsic safety devices, such as trigger locks, have been central in the recent state discussions on how to reduce firearm injuries. The actual prevalence of handgun locking devices in the consumer market, however, is unknown. This study catalogued the extrinsic safety devices available from handgun dealers and discount retail chains in Milwaukee, WI. We found that all locations studied (n=13) stock at least 1 type of extrinsic safety device. A total of 21 unique models of safety devices were stocked by the 13 locations, with trigger locks being the most common (n=9). Other types of devices included lockboxes (n=5), cable locks (n=4), hammer locks (n=1), barrel locks (n=1), and a rubber slide strap (n=1). Handgun owners in the Milwaukee metro area have a selection of extrinsic handgun safety devices available from handgun dealers and discount retailers. However, there does not appear to be a consistent availability on type of device.

INTRODUCTION

Efforts to restrict the access of children and adolescents to handguns have become a significant issue. In Southeastern Wisconsin from 1994-1996 there were 702 firearm fatalities, of which 52% (367) were homicides, 46% (320) were suicides, and 2% (15) were unintended or undetermined.[1] Over that same time period, 26% (95) of the homicides and 5% (15) of the suicides were committed by individuals under 18 years old. For that 18 and under age group, 97% (92) of the homicides and 60% (9) of the suicides involved the use of a handgun.[2]

It is unknown how the teens and children accessed the firearm involved or how many of the deaths may have been prevented by the use of trigger locks or other devices to reduce access to the gun. Despite their uncertain utility, many types of handgun locking devices are marketed to consumers,[3,4] and at least 1 handgun manufacturer ships trigger locks with all new guns.[5] Physicians have been encouraged to discuss handgun locking device usage with their patients as a means of reducing the risk of firearm injuries.[4]

Recent national and state discussions have focused on proposals that all handguns be sold with extrinsic safety devices or to require their use. The 1999 Wisconsin State Senate Bill 6, for example, proposes that all firearms must be sold with some type of locking device.[6] The actual prevalence of extrinsic handgun locking devices in the consumer market, however, is unknown. Once consumers decide to purchase a locking device, what type of selection is available to them in the local market? To address this question, we catalogued the firearm locking devices available through handgun dealers and major retail stores in a defined metropolitan area: Milwaukee, WI.

METHODS

Local handgun dealers were selected from listings in the Milwaukee, WI metropolitan phonebook under the heading "Guns and Gunsmiths." All dealers who sell handguns from a permanent storefront location were selected. Also, large discount retailers which stock firearm accessories were also included. Pawn shops and private dealers without a permanent location were excluded. Eight handgun dealers and 5 discount retail locations (representing 3 chains) were studied.

All 13 locations were visited by 1 of the authors (JSM) over the period April 28 through May 9, 1999. At each location, an inventory of all safety devices displayed in the store was taken, noting the type of device, the manufacturer, and the price. This provided a cross sectional sampling of the extrinsic handgun safety devices available to Milwaukee consumers.

RESULTS

A total of 8 handgun dealers were listed in the Milwaukee Metro phone directory under the heading of "Guns and Gunsmiths." They were located in Milwaukee (1),

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Waukesha (2), West Allis (1), Greenfield (2), Glendale (1), and Menomonee Falls (1). All 8 (100%) dealers stocked at least 1 type of extrinsic locking device. Two (25%) stocked only 1 model of safety device, one (12.5%) stocked 2 models, two (25%) stocked 3 models, one (12.5%) stocked 4 models, one (12.5%) stocked 6 models, and one (12.5%) stocked 9 models. A total of 19 unique safety device models were stocked by the 8 dealers (some dealers stocked the same models). All 8 (100%) stocked trigger locks (Figure 1), 5 (63%) stocked lockboxes (Figure 2), 3 (38%) stocked cable locks, 1 (13%) stocked a barrel lock, and 1 (13%) stocked a rubber slide strap (Figure 3).

Three discount retail chains in the Milwaukee area were identified as carrying firearm accessories and a total of 5 stores from the 3 chains were studied. All the stores (100%) stocked at least 1 model of handgun locking device. Two (40%) of the stores stocked 3 models, one (20%) store stocked 2 models, and two (40%) stores stocked only 1 model. A total of 3 unique models of locking devices were stocked by the 5 stores (some stores stocked the same models). All 5 (100%) stocked trigger locks, and 4 (80%) stocked hammer locks. None stocked lockboxes, barrel locks or cable locks.

Of the 21 unique models stocked by firearm dealers and discount stores, 9 (43%) were trigger locks, 5 (24%) were lockboxes, 4 (19%) were cable locks, 1 (5%) was a hammer lock, 1 (5%) was a barrel lock, and 1 (5%) was a rubber slide strap. For trigger lock models, 7 (78%) had keyed locks and 2 (22%) had combination locks, with a mean price of $12 (range $4 to $34). For lockbox models, 3 (60%) had both keyed and combination locks, while 2 (30%) had only combination locks. The mean price was $144 (range $50 to $190). For cable locks, all (n=4) had keyed locks with a mean price of $9 (range $8 to $9). The hammer lock model had a keyed lock with a price of $5. The barrel lock had a rod that inserted into the barrel and then a cable with a key lock that secured through the trigger guard. This sold for $13. The rubber slide strap did not contain a lock and sold for $20.

DISCUSSION

In a defined metro area, Milwaukee, WI, consumers have 6 basic choices of handgun safety devices available to them from local handgun dealers and discount retailers: trigger locks, lockboxes, cable locks, hammer locks, barrel locks and rubber slide straps, with trigger locks being the most common. All 6 of these devices provide different levels of security and have distinct advantages and disadvantages.

Trigger locks (Figure 1) secure through the trigger guard, typically with a block on either side, locking in place such that the trigger cannot be pulled.[4] Handguns without trigger guards are unable to utilize a trigger locking device. Cable locks have a cable that loops through the chamber and breech and out either through the barrel muzzle or the grip (in pistols with the magazine removed) of the gun, with the free ends being locked together. Hammer locks secure in place behind the hammer so that it cannot be cocked (these devices are primarily designed for rifles, but potentially could be used for some types of handguns). Barrel locks have a rod that inserts through the barrel, preventing a cartridge from being placed in the chamber. All 4 of these have the advantage of being inexpensive, relatively easy to use, and allow for easy transport of the handgun. A significant disadvantage of these devices is that they all require action on the part of the owner for the device to be properly used. In addition, these devices do not prevent children from accessing the handgun, rather they merely prohibit them from discharging the gun. Finally, devices such as trigger

Figure 1. Two Trigger Lock Models

Figure 1A

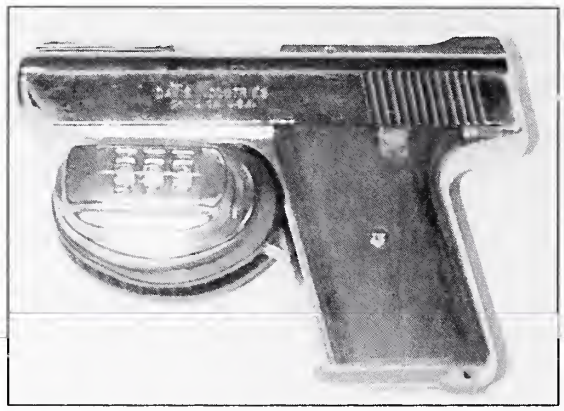

Figure 1B

Trigger locks are designed to secure around the trigger of a handgun, preventing it from being pulled, and thus preventing discharge of the gun. They can be purchased in either keyed (A) or combination (B) styles. Trigger locks cannot be used with guns that do not have a trigger guard.

Figure 2. A Lockbox for Handguns
This model of lockbox contains both a keyed and combination lock. When unlocked, the spring loaded door opens, allowing rapid access to the handgun stored inside.

Figure 3. A Rubber Slide Strap
With this device, the thick rubber strap hooks over the rear of the slide, while a short rod slips into the barrel, securing the strap in place. This restricts movement of the slide.

locks should not be used to secure a loaded gun due to the risk of unintended discharge.

Lockboxes (Figure 2) are small safe-like devices, designed to hold only 1 or 2 handguns, which lock with either a key and/or combination.[4] Several different designs are available in the Milwaukee area, which vary in the type of lock, the concealability of the box, and the quality of construction. The principle advantage is that a lockbox limits access to the gun by children and adolescents while still allowing the gun to be quickly accessed by an authorized user. The lockbox is the device most often used by police to prevent unauthorized access to their own handguns.[7] The disadvantage is that if the box is bolted down (as it should be to provide maximum security) it is not easily transportable. Lockboxes are more expensive than any other type of extrinsic locking device.

The final type of safety device found at one Milwaukee area handgun dealer, a rubber slide strap (Figure 3), does not fit easily into any type of generalized category. It is a thick rubber strap, which hooks around the back of the slide at the hammer, and then has a short rod that inserts into the barrel. The tension of the strap secured around the slide in this manner prevents the hammer and slide from moving, thus preventing discharge. However, the strap does not lock, and thus does not prevent access or usage of the gun by children who have the strength to remove it. This device primarily reduces the risk of unintended discharge by the user, as well as limiting the usage by small children.

Aftermarket built-in lock kits and magazine locks were not found at any of the study locations. Each of these devices could be ordered by the consumer, but were not stocked by local dealers.

In comparison to handgun dealers, discount retailers tended to have a more limited selection and also lower overall prices. Three of the stores sold plastic trigger locks that had a very simple key-type lock, and came in packs of 3 for $4.

In the course of this study, the handgun dealers were informally asked for their recommendations as to how a handgun should be stored. A formal survey technique was not used. The advice provided by local gun dealers on this subject was quite diverse, and likely reflects the wide spectrum of attitudes within the gun owning community towards safety devices. Some dealers had a negative attitude towards safety devices. While only 1 actively discouraged their use, several others discounted the utility of safety devices for preventing injury. In contrast, other dealers encouraged that all guns be stored with some type of locking device and recommended that all children who live in homes with handguns be educated on their safe use. However, a formal survey of handgun dealers needs to be done if their attitudes towards handgun safety are to be accurately measured.

This study has several limitations. First, it is a cross sectional study, which reflects each dealer's inventory of safety devices on a specific day. Over time, these inventories are likely to change with the demands of the market. One dealer commented that he was considering stocking lockboxes since he had recently had several requests for them. At the time of the survey, however, he had none available.

Second, only handgun dealers and discount retailers who stock firearm accessories were included in this study. It was assumed that dealers and retailers would be the most likely places within the community that a gun owner would seek to purchase a handgun safety device. Pawn shops, mail order catalogs, gun shows, the

internet, and a variety of other sources all sell firearms and/or accessories. This study does not address the types of safety devices available to consumers from these sources.

Third, Milwaukee, WI is a moderately sized metropolitan area in the upper Midwest. The results from this study may not reflect the availability of locking devices or the type of advice provided to handgun consumers in other parts of the country or those who live in larger or smaller communities.

In conclusion, handgun owners in the Milwaukee metro area have a selection of extrinsic handgun safety devices available from local handgun dealers and discount retailers. This selection, however, is not consistently available in all stores. Also, no standards for quality of the various devices appear to be present, and in some cases the cost of the device is greater than the cost of the handgun itself.

The decision of how to store and secure a handgun rests with the authorized gun owner and needs to be consistent with accepted safety practices.[8] However, our study suggests that the full spectrum of handgun safety devices are inconsistently available. As a result of this inconsistency, consumers may not have the resources needed to make educated choices regarding handgun safety.

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Accidental Pediatric Ingestion, Hospital Charges and Failure to Utilize a Poison Control Center

Ernest S. Stremski, MD

ABSTRACT

Problem: Telephone contact with a poison control center may determine that accidental poison ingestion may not pose a risk of developing adverse clinical effect. Over 50% of reported human poisonings occur in children less than 6 years old. Yet most of these accidental childhood ingestions do not produce clinical toxicity. Such nontoxic ingestions can be managed by telephone rather than treated in a health care facility. This study evaluated the clinical effects produced, and the cost of emergency department care, versus obtaining telephone advice from a poison control center, following accidental poison ingestion in children age 6 and under.

Methods: 1 year review of all cases of accidental ingestion in children 6 years and under evaluated in a pediatric emergency department. Utilizing the hospital's poison control center criteria, cases were grouped as nontoxic (no risk of adverse effect) or toxic (significant risk for adverse effect). Groups were compared for demographics, clinical effect, dispositions, charges.

Results: 467 cases were seen; 141 met nontoxic criteria. Toxicity was not related to race or gender. Children age 2 and less accounted for the majority of cases (p = .003)

	n	Charges: Mean and (range)	Disposition	Symptomatic due to ingestion
Nontoxic	141	$115 ($53-470)	Home	0/141
Toxic	262	$225 ($53-1366)	Home	7/262
Toxic	64	$2460 ($700-7695)	Admitted	58/64

Estimated poison control center costs are less than $25 per telephone call.

Conclusion: Significant charges are billed to health care payers when an emergency department is utilized as the primary means of evaluating children with nontoxic ingestions. Utilization of a poison control center as the initial means of intervention following an accidental pediatric ingestion results in significant savings in health care expenditures.

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INTRODUCTION

Poison control centers operating at Children's Hospital of Wisconsin (CHW), Milwaukee, and at The University Hospitals and Clinics (UWHC), Madison, annually advise more than 45,000 callers, providing a toll-free information service for the general public and health care providers. Poison control centers can identify poisonous substances, counsel callers on the risk of developing adverse effects following poison exposure, provide health care workers advice for medical management of poisonings, and deliver poison prevention education for the general public.[1] Wisconsin's poison control centers serve as a first line of intervention for caretakers whose children have been exposed to toxic substances, advising whether or not evaluation in an emergency department or other health care facility is necessary.

The 1996 Annual Report of the American Association of Poison Control Centers - Toxic Exposure Surveillance System (AAPCC-TESS) revealed that 52.8% of all human poisoning exposures occurred in children age 6 or less, accounting for 1,137,295 cases of human poisoning.[2] AAPCC-TESS data has also shown that up to 70% of all calls made to poison control centers regarding human poison exposure were able to be managed by phone, averting the need for referral to a health care facility.

Previous studies by Kearney,[1] Miller,[3] and Phillips have shown the fiscal advantages of poison control center utilization in limiting emergency care costs. These studies revealed that poison control centers safely provided medical advice to those individuals who had minimal risk of developing adverse effect following exposure to a poisonous substance. Emergency department utilization and health care expenditures were decreased when poison control center staff managed individuals by telephone versus referring them to a health care facility.

The objective of this study was to determine the cost of emergency care for the evaluation and treatment of pediatric poisoning at the Children's Hospital of Wisconsin, Milwaukee. This cost was applied to project

estimated annual savings in health care expenditures from utilizing 1 poison control center as a first contact in poisoning intervention.

METHODS

Charts of all patients age 6 or less who presented to the emergency department (ED) of Children's Hospital of Wisconsin from July 1, 1995 to June 30, 1996 for the suspicion of drug or chemical exposure were reviewed. This was consistent with national poison control center data which groups patients by ages 0 to 6, 7 to 12, and 12 to 19 years. Patients with acute drug ingestion, defined as a single oral intake of a drug or chemical were enrolled. Excluded from this study were cases of chronic ingestion, defined as 2 or more consumptions of the same substance, and cases of dermal, inhalation, or ocular exposure. Also excluded were patients who were brought to the ED secondary to a suspicion of poisoning, yet were found to have a diagnosis other than poisoning.

Collected data included patient age, gender, race, the caretaker's report of the type and quantity of substance ingested, physical exam findings, whether or not the poison control center was contacted prior to ED arrival, and final disposition from the ED. Patient insurance and total hospital charges were also recorded for enrolled patients. The caretaker's historical account of the ingestion was obtained by ED personnel and not from poison control center nor telephone triage information.

All charts were reviewed by the medical director of the CHW Poison Control Center and assigned as being toxic or nontoxic using the CHW Poison Control Center (PCC) guidelines for pediatric patients. Assigning a case as toxic or nontoxic was based on the caretaker's reported history of the type and quantity of the substance ingested. Toxic exposures are defined as ingestions with significant potential for adverse clinical effect due directly to the ingestion of a particular substance. Per PCC protocols, all exposures identified as toxic are referred to a health care facility for evaluation. Nontoxic exposures, therefore, are defined as ingestions which pose minimal or no risk of adverse clinical effect. Criteria to define a nontoxic exposure include 1) the specific substance, 2) the potential quantity ingested, and 3) the lack of onset of immediate symptoms following the ingestion. PCC protocols allow for telephone management of nontoxic exposures and do not mandate a referral to a health care facility for evaluation.

These two groups, toxic and nontoxic ingestions, were compared for differences in demographics, dispositions, insurance distribution, and hospital charges. The distribution of the enrolled patient's insurance carriers was compared to that of all outpatient visits to CHW in 1995. Mean and total charges were then grouped and compared by patient insurance carrier.

Table 1. Summary of Nontoxic Cases.

Agent	Nontoxic Ingestion Criteria	n
Acetaminophen	< 100 mg per kg	10
Acetone	1 swallow, Asymptomatic[1]	4
Amoxicillin	< 1000 mg	2
Antihistamines	< than 3 times child's therapeutic dose	12
Bleach	1 swallow, Asymptomatic	15
Borate	< 1000 mg	3
Camphor	< 1 mg per kg	1
Cigarette	< ½ cigarette	4
Coffee grounds	Asymptomatic	1
Detergents	neutral pH, Asymptomatic	14
Dextromethorphan	< 10 mg per kg	1
Doxycylcine	< 400 mg	1
Ethanol	Calculated level < 50 mg/dl[3]	7
Fluoride	< 3 mg per kg elemental F	2
Fragrances	considered nontoxic[2]	2
Glue (nonacrylate)	considered nontoxic	4
Aliphatic Hydrocarbon	1 swallow, Asymptomatic	6
Ibuprofen	< 90 mg per kg	7
Ink	considered nontoxic	1
Iron tablets	< 20 mg per kg	2
Isopropanol	Calculated level < 25 mg/dl	2
Jade plant	considered nontoxic	2
Latex paint	considered nontoxic	2
Laxatives	Asymptomatic	5
Nightshade berry	< 5 berries, Asymptomatic	4
Oral contraceptive	1 tablet	1
Pine Oil	1 swallow, Asymptomatic	4
Ranitidine	< 5 mg per kg	1
Pseudoephedrine	< 3 mg per kg	9
Pravistatin	1 tablet	2
Salicylate	< 75 mg per kg	5
Silica Gel	considered nontoxic	2
Sunscreen	considered nontoxic	2

All doses refer to a single ingestion of the substance

[1]Asymptomatic: child manifests no symptoms following the ingestion
[2]considered nontoxic: no toxic properties
[3]Level equals: Amount ingested/(patient weight Kg * 0.7 L/kg)

Nominal variables were analyzed by Chi Square. Nonparametric testing was used to test the means between 2 populations. One Way ANOVA was used to test the difference of 3 or more means. Statistical testing was considered significant for p values less than 0.05.

RESULTS

There were 567 cases reviewed, of which 467 (82%) met inclusion criteria. Of the 467 enrolled cases, 141 (30%) were categorized as nontoxic. In all 141 instances, the poison control center was not contacted by the caretaker prior to ED evaluation. Unknown is the percent of these 141 patients whose caretakers did not have telephone ability to first call the poison control center. All 141 patients had normal physical exams,

Table 2. Substances Involved in Toxic Cases.

Agent	n	Agent	n
ACE Inhibitor	4	Ethanol	7
Acetaminophen	13	Ethylene Glycol	2
Acetone	1	Fluoride	1
Albuterol	5	Glipizide	1
Anticoagulants	38	Ibuprofen	6
Antihistamines	23	Insecticide	1
Arsenate	1	Iron	9
Astemizole	2	Isopropanol	31
AZT	1	Lily of The Valley	3
Benzocaine	3	Lomotil	1
Beta Blocker	5	Midrin	1
Borate	1	Minoxidil	1
Bromate	1	Narcotic	9
Buproprion	1	NSAID	6
Caffeine	2	Phenothiazine	7
Calcium Blocker	6	Phenylpropanolamine	10
Camphor	3	Pine Oil	4
Carbamazepine	4	Prasozin	1
Caustic/Corrosive	29	Ritalin	2
Cigarettes	5	Salicylate	3
Cyclobenzaprine	2	Serotonin Inhibitor	3
Cylert	1	Tricyclic Antidepressant	8
DEET	1	Toluene	3
Dexedrine	1	Trazadone	1
Dextromethorphan	3	"unknown pill"	6
Dilantin	4	Yew berries	2

Table 3. Hospitalized Cases

Agent	Reason for admission	n
ACE Inhibitor	Observation of BP[1]	3
Acetaminophen	Hepatotoxic levels	1
Antihistamines	Altered Mental Status	4
Astemizole	Observation of cardiac rhythm	3
Benzodiazepene	Altered Mental Status	1
Beta Blocker	Hypotension	3
Calcium Blocker	Hypotension	2
	Observation of BP	3
Caffeine	Altered Mental Status / Toxic Level	1
Caustic/Corrosive	Oral Burns only	10
	Esophageal burns	8
Clonidine	Hypotension	2
	Apnea	2
Cylert	Hallucinations	1
Dilantin	Altered Mental Status / Toxic Level	2
Glipizide	Hypoglycemia	1
Hydrocarbons	Aspiration Pnuemonitis	5
Iron	Toxic Level	1
Lomotil	Apnea	1
Metoclopramide	Dystonic Reactions	1
Narcotic	Altered Mental Status	1
Phenothiazine	Apnea	1
	Dystonic Reactions	1
Ritalin	Tachycardia	1
Tricyclic Antideressant	Apnea / Tachycardia	3
'unknown pill"	Dystonic Reactions	1

[1]BP: blood pressure

Table 4. Demographics.

	Nontoxic	Toxic	
Gender			
Male	164	83	
Female	162	58	(p = 0.910)
Race			
Caucasian	181	71	
African	126	57	
Hispanic	19	13	(p = 0.330)
Age			
2 Y and <	260	96	
3 - 4 Y	42	36	
5 - 6 Y	24	9	(p = .003)

failed to develop symptoms related to the ingestion, and were discharged to home. Table 1 reveals the substances and criteria used to classify these 141 cases as nontoxic.

Table 2 lists the substances involved in the 326 cases classified as toxic. Caretakers first contacted the PCC in 130 (40%) of these cases. Upon recognition of the potential toxicity of the ingestion, the PCC instructed these patients to go to the CHW Emergency Department for medical evaluation. Only 75 (23%) of these patients developed symptoms attributable to the substance ingested. Two hundred sixty-two patients were discharged from the ED to home, while 64 were admitted to inpatient units. Table 3 lists the substances involved and the reason for inpatient care in these 64 cases. All 64 were discharged home in satisfactory condition following 1 or 2 days of inpatient stay. There were no fatalities.

Table 4 shows that there was no association between gender or race between toxic and nontoxic cases. However, toxic cases occurred more frequently in children age 2 and younger, accounting for 76% of all enrolled cases.

Table 5 shows the insurance distribution of the study patients compared to that of all outpatient visits to CHW in 1995. No significant difference between type of insurance carrier was noted between the toxic and nontoxic groups. However, this distribution differs in that study patients were more often enrolled in managed care organizations and less often covered by private insurance.

Hospital charges, excluding professional charges by physicians, were available for 422 patients. There was a total of $228,220 billed, with $164,935 (72%) charged to managed care organizations. Table 6 categorizes these charges by patient disposition and type of insurance.

A total of $16,344 in charges were billed for ED management of 119 of the 141 nontoxic cases with available financial data. In these 119 cases, individual charges ranged from $53 to $470 with a mean charge of $115 per nontoxic patient. This mean did not differ

Table 5. Insurance Distribution

	Nontoxic patients	Toxic patients		% All study patients	% All oupatient visits in 1995	
Blue Cross	3	13		3 %	8 %	
Private Carrier	31	55		9 %	33 %	
Managed Care	93	215		66 %	31 %	
Title 19	5	14		4 %	25 %	
No insurance	9	29	(p =.603)	8 %	3 %	(p =.001)

based on the type of insurance. A total of $54,321 in charges were billed for ED management of 229 of the 262 toxic cases, with available financial data, who were discharged home from the ED. In these 229 cases, individual charges ranged from $53 to $1,366 with a mean charge of $225 per patient. This mean did not differ based on the type of insurance. With respect to ED charges only, the mean charge for nontoxic patients was significantly different than that of toxic patients (p= .003). Financial data was available for 64 of the 68 toxic patients who were evaluated in the ED and admitted to inpatient units. Total charges billed to these 64 patients was $157,355. The mean charge for admitted patients was $2,460, ranging from $700 to $7,695. Mean charge for hospitalized patients did not differ with respect to insurance.

DISCUSSION

Charges to health care payers have been partially determined for emergency department management of children who have accidentally ingested potentially poisonous substances. It was not possible to determine all charges. Professional billing and some ancillary charges were not captured. Despite this, minimal health care expenditures for treating pediatric patients with accidental poisoning can be estimated.

In this study, 141 (30%) cases were classified as nontoxic ingestions; meaning that there was no significant risk of developing adverse effect directly due to the ingested substance. Despite this lack of risk, caretakers brought these children to the ED rather than first calling the poison control center to determine whether or not medical evaluation was necessary. The mean ED charge for these 141 cases was $115. In 18 (13%) of these 141 cases, patients were transported to the ED via ambulance. Had the poison control center been contacted, these 141 patients would have met criteria for telephone management, averting ED transport and evaluation.

In this study, 64 admitted patients, or 14% of all cases, accounted for 68% of the total charges. A review by Woolf determined that 0.9 % of all hospital admissions to a children's hospital from 1992 - 1995 were due to poisoning, accounting for over $1 million in charges.[6] Their mean charge per case was found to be $4,968 and included all pediatric age groups. Mean length of stay was 3.4 days. In our study, adolescent poisonings were not included and 46 of the 64 admitted patients were discharged home in less than 24 hours. Only 16 of our patients had inpatient stays of more than 1 day. Differences in the inpatient charges between these 2 studies are most likely related to population severity of illness.

When faced without access to a poison control center, caretakers will use other health care services if their child accidentally ingests a potentially poisonous substance. Phillips reported a California county which lost telephone access to the regional poison control center (RPCC) for a period of 4 months.[4] During this time there were 270 instances where callers had to use other services including emergency 911, emergency departments, or physician offices as a means to evaluate the ingestion. Similarly, Kearney surveyed 589 callers to the San Francisco RPCC who received telephone management alone.[2] Had the RPCC not been available, 79% of callers responded that they would have sought care with the local emergency health care system. Kearney further determined that the RPCC mean cost of care per case managed by the RPCC was $23 dollars versus an estimates of $107 to 428, mean $170, for an ED visit and $30 to 125, mean $54, for a visit to a private physician office.

Felberg surveyed 83 US poison control centers, serving 63% of the US population in 1995 and determined that the mean cost for management of a single case of human exposure by a RPCC alone ranged from $23 to $36.[5] Utilizing data from AAPCC-TESS, US Vital Statistics, and the National Hospital Discharge Survey, Miller estimated that $175 per case in health care expenditures are saved when patients utilize a poison control center for a poisoning incident versus a visit to a health care facility.[3]

The poison control center at CHW provides service to 50% of Wisconsin's population, primarily serving eastern Wisconsin. From 1995 – 1996 this center received 41,289 calls of which 26,451 (64%) were directly related to a human poisoning. Twenty-five percent (6395) of these calls were referred to a health care facility for medical evaluation. Of these calls, 17,888 involved children from 0 to 6 years old. Had

Table 6. Categorized Charges

	# With Financial Data	Total	Mean	
Nontoxic cases discharged home, ED charges only				
Blue Cross	2	$ 183	$ 92	
Private Carrier	23	$ 4,060	$ 177	
Managed Care	86	$ 11,416	$ 133	
Title 19	4	$ 370	$ 93	
No insurance	4	$ 315	$ 78	
All cases	(119)	(16,344)	(115)	(p = .190)
Toxic cases discharged to home, ED charges only				
Blue Cross	11	$ 3,176	$ 289	
Private Carrier	37	$ 9,562	$ 258	
Managed Care	166	$ 36,541	$ 220	
Title 19	7	$ 1,365	$ 195	
No insurance	18	$ 3,878	$ 215	
All cases	(229)	(54,321)	(225)	(p = .648)
Toxic cases admitted to hospital, ED and Inpatient charges				
Blue Cross	3	$ 4,155	$ 1,385	
Private Carrier	6	$ 15,942	$ 2,657	
Managed Care	45	$116,978	$ 2,600	
Title 19	5	$ 10,968	$ 2,194	
No insurance	5	$ 9,312	$ 1,862	
All cases	(64)	(157,355)	(2,460)	(p = .695)

poison control services not been available, over 20,000 callers who were managed by telephone may have needed to seek evaluation from other services. As seen in the studies by Kearney and Phillips, emergency services would have been used in the majority of these instances.

With specific regard to pediatric patients, in 1995 and 1996 the CHW Poison Control Center managed 14,208 children age 6 and under at home without health care facility referral. All 14,208 cases met criteria for a nontoxic exposure. The annual budget of the CHW poison control is $450,000; an estimated cost per telephone call is less than $25. An annual savings in health care expenditures can be estimated using these 14,208 pediatric cases. If a $115 emergency department charge found in this study is applied, it can be extrapolated that use of the poison control center may account for an estimated $600,000 savings in annual health care expenditures from managing these children, age 6 years and less, at home.

14,208 cases at $115 = $ 1,633,920
(Total cost if ED Care)
14,208 cases at $ 25 = $ 355,200
(Total cost for PCC call)
Subtract the cost of PCC phone call from that of ED care and divide by 2
Estimated annual savings = $ 639,360

While actual charges would vary based on type of facility used, regions, and other factors as capitated agreements, it is clear that utilization of a poison control center for nontoxic pediatric exposures can reduce health care expenditures.

Managed care organizations and health care provider groups can reduce expenditures when a poison control center is initially utilized following a child's accidental ingestion of potentially poisonous substance. Nontoxic ingestions may be safely managed at home by consultation with poison control center staff, thus eliminating the need for ED referral. The poison control centers at CHW, Milwaukee, and UWHC, Madison have combined their operations and efforts to form The Wisconsin Poison System. Direct access for all Wisconsin residents and health care providers is provided toll free at 1-800-815-8855. This system will engage in additional prospective studies to determine the economic benefits of poison control center presence within the state of Wisconsin.

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Hospitalizations for Vehicle Associated Injuries in Wisconsin

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ABSTRACT

Computerized data from the Wisconsin Office of Health Care Information (OHCI) was utilized to evaluate the epidemiology of vehicle associated injuries treated in acute care Wisconsin hospitals in 1997. There were 6043 vehicle associated injuries which required hospitalization in Wisconsin in 1997, a rate of 141 per 100,000 males and 91 per 100,000 females. Seventy-eight percent of these were motor vehicle traffic related (8% of which involved collisions with pedestrians), 9% were motor vehicle non-traffic related and 6% were pedal cycle related. This study demonstrates how the risk of these various types of vehicle related injuries varied with age, gender, and county of residence, and describes the distribution of morbidity associated with each type.

The information described in this paper may be useful in developing hypotheses regarding the causes of vehicle related injuries in Wisconsin, and ultimately lead to the development of interventions which will decrease morbidity, mortality, and costs due to vehicle related injuries.

INTRODUCTION

Motor vehicle crashes are the leading cause of death in the United States for ages 1 to 44 and account for over half of all deaths for ages 5 to 34.[1,2] For all ages combined, they account for approximately 50,000 deaths,[3] 500,000 hospitalizations,[4] and 5,000,000 emergency room visits[5] per year. In 1997, over 6000 patients were hospitalized in acute care Wisconsin hospitals due to vehicle related injuries, with an average stay of 6.1 days and an average charge per hospitalization of approximately $16,000.[6] Death rates from motor vehicle crashes in Wisconsin are generally comparable to US rates, as demonstrated by a Wisconsin rate of 18.1 per 100,000 population, compared to a US rate of 20.7, from 1979 through 1987.[3]

Injuries and deaths due to motor vehicle crashes, like injuries and deaths due to other causes, as well as diseases, are not random events. There are many causes for these injuries and deaths that are preventable. Prominent among the preventable factors are those having to do with the driver (e.g., alcohol consumption), safety features of the vehicle itself, and road conditions.[7]

In order to gain a greater understanding of the causes of these injuries and deaths (as well as injuries and deaths due to other causes) in Wisconsin, and in order to assist in the evaluation of the quality of care rendered by Wisconsin health care providers who treat trauma patients, the Wisconsin Injury Research Center (WIRC) of the Medical College of Wisconsin (MCW) has begun to analyze such data in the process of developing a comprehensive Wisconsin Injury Surveillance System (WISS). This study is an epidemiologic analysis of all vehicle related injuries which resulted in hospitalization in any acute care hospital in Wisconsin in 1997, as compiled from computerized administrative data obtained from Wisconsin's Office of Health Care Information (OHCI).

METHODS

The data for this study came from the public use data file for the Wisconsin OHCI Hospital Inpatient Discharge Data. Wisconsin hospitals are required by law to report this information to OHCI. This report includes information from all patients hospitalized in Wisconsin acute care, non-federal hospitals in 1997 whose primary E code (external injury) diagnosis was a vehicular accident (E800-E848). The presence of an E code diagnosis means that a condition resulting from an external injury was addressed at some time during the hospitalization. This condition may or may not have been the primary reason for the hospitalization. By definition, the primary diagnosis and the primary E code diagnosis are never the same, since the E code diagnosis signifies the external source of injury, whereas non-E code diagnoses, including the primary diagnosis, signify specific medical conditions (which may or may not represent the result of the source

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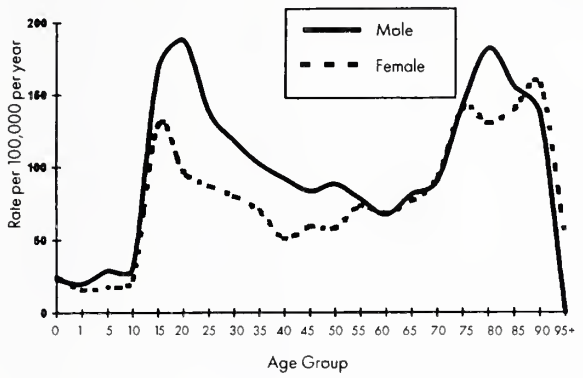
Figure 1. Rates (per 100,000) of Hospitalization with Primary E Code Diagnosis of "Motor Vehicle Traffic Collison, Excluding Collisions with Pedestrians" by Gender and Age Group (Wisconsin, 1997)



specified by the accompanying E code(s).)

Definitions of the data elements considered in this study are published by OHCI,[8] which used the ICD-9 CM system for coding of primary and secondary diagnoses. Extensive efforts were made by OHCI to edit and ensure, to the extent possible, the accuracy of this data.[8]

Five categories of vehicular associated injuries were analyzed:

1. Motor vehicle traffic collisions excluding pedestrians (E810-E819, except ES14).
2. Motor vehicle traffic collisions involving collision with a pedestrian (E814).
3. Motor vehicle non-traffic associated injury (E820-E825).
4. Pedal cycle associated injury (E826).
5. Other vehicle associated injury - including other road vehicles, water transport vehicles, air/space transport vehicles, and trains (E800-E848, other than E810-E826).

All rates were calculated using estimated Wisconsin population statistics for 1997[9] as the denominator and cases from the OHCI database, as described above, for the numerator. Hospitalizations which were transferred from other hospitals were omitted, so as to avoid double counting of these hospitalizations. Rates were calculated for all 5 categories of vehicular accidents by gender and by age group (starting with infants, then 1-4 years, 5-9 years, continuing with 5-year age categories, with 95+ being the last age category).

All 5 categories of vehicle associated injuries were assessed for distribution of primary diagnoses, using the following categories of diagnoses: Fractures (800-829); dislocation (830-839); sprains and strains of joints and adjacent muscles (840-848); intracranial injury, excluding those with skull fractures (850-854); internal injury of thorax, abdomen, and pelvis (860-869); open wound (870-897); contusion with intact skin surface (920-924); all other injuries (800-999, other than those codes noted above); and, all other primary diagnoses. Rates were calculated for all 5 categories of vehicle associated injuries for urban vs. rural county of residence, and for each individual county. Only Wisconsin residents were included in this part of the analysis. Counties were considered urban if they contained at least 1 city with a population of 50,000 or greater. Counties were considered to be intermediate between rural and urban if they were listed as a metropolitan county by the Wisconsin Center for Health Statistics in 1992, but did not contain a city of over 50,000 population. Because age adjustment had a negligible effect on the relative risks between counties, all rates presented in this paper are crude rates.

Whenever comparisons were made between 2 rates, tests of statistical significance were performed to calculate p values using the chi square test, and relative risks were calculated with Taylor Series 95% confidence intervals.[10] Wherever the term "statistically significant" is used in referring to a comparison between 2 rates that refers to a p value of less than .05.

RESULTS

There were 6043 vehicle associated injuries which required hospitalization in Wisconsin in 1997 (Table 1), a rate of 141 per 100,000 population for males and 91.4 per 100,000 for females (relative risk for males=1.54, 95% C.I. = 1.47, 1.62). Motor vehicle traffic collisions excluding pedestrians accounted for well over half of the cases in both genders. Males exhibited substantially higher numbers and rates than females in all 5 categories.

AGE-GENDER PATTERNS

In the motor vehicle traffic collisions (excluding collisions with pedestrians) group there is a bimodal pattern of increasing rates with age for both genders (Figure 1). In both genders there is a great rise in rates beginning in the 15 to 19 age group, which peaks in this age group in females, and in the 20 to 24 age group in males. There then follows a gradual but consistent decline with age in both genders until age 44. Another substantial rise in rate then occurs in both genders in the 75 to 79 year age group, and this increased rate is then maintained until age 94.

There is a substantial and statistically significant higher rate in males than in females for each of the eight 5-year age groups from 15 to 54, with relative risks varying from 1.41 to 1.94. Also, the male rate exceeds the female rate in each of the age groups under 15 years, although the magnitude of this difference is less than in the older age groups, and this difference is statistically significant for this group as a whole (RR=1.42, 95%

Table 1. Number and Rate of Hospitalizations for Vehicle Associated Injuries by Gender and Cause (Wisconsin, 1997)

	Males		Females		Relative Risk	95% C.I.
Cause of Injury	Number	Rate/100,000	Number	Rate/100,000		
Motor vehicle traffic, excluding pedestrians	2,470	96.2	1,861	70.3	1.37	1.29, 1.45
Motor vehicle traffic, involving pedestrians	221	8.6	157	5.9	1.45	1.18,1.78
Motor vehicle non-traffic	444	17.3	127	4.8	3.61	2.96, 4.39
Pedal Cycle	273	10.6	106	4.0	2.66	2.12, 3.32
All Other	214	8.3	170	6.4	1.30	1.06, 1.59
Total	3,622	141.0	2,421	91.4	1.54	1.47, 1.6219

Table 2. Number and Percent of Various Types of Injury Resulting from Various Vehicular Causes (Wisconsin, 1997)

	Type of Injury#								
Cause Of Injury	Fracture	Intracranial	Internal Organ	Open Wound	Contusion	Sprains & Strains	Dislocations	Other N Code ≥ 800*	All other Primary diagnoses
MV traffic, excluding pedestrians	2,060 (47.6%)	563 (13.0%)	495 (11.4%)	197 (4.5%)	188 (4.3%)	113 (2.6%)	76 (1.8%)	145 3.3%)	494 (11.4%)
MV traffic, involving pedestrians	212 (56.1%)	50 (13.2%)	25 (6.6%)	20 (5.3%)	6 (1.6%)	7 (1.9%)	3 (0.8%)	16 (4.2%)	38 (10.3%)
MV Non-traffic	330 (57.8%)	46 (8.1%)	81 (14.2%)	23 (4.0%)	11 (1.9%)	19 (3.3%)	12 (2.1%)	18 (3.2%)	31 (5.4%)
Pedal Cycle	215 (56.7%)	51 (13.5%)	34 (9.0%)	14 (3.7%)	4 (1.1%)	5 (1.3%)	3 (0.8%)	9 (2.4%)	44 (11.6%)
All other	225 (58.6%)	36 (9.4%)	49 (12.8%)	12 (3.1%)	10 (2.6%)	11 (2.9%)	7 (1.8%)	16 (4.2%)	18 (4.7%)
TOTAL	3,042 (50.3%)	746 (12.3%)	6894 (11.3%)	266 (4.4%)	219 (3.6%)	155 (2.6%)	101 (1.7%)	204 (3.4%)	626 (10.4%)

* N Codes ≥ 800 refer to injury diagnoses.
\# Percents for all types of injury added together, plus other primary diagnoses (i.e., the last column) add up to 100% (i.e., all rows add up to 100%)

C.I. = 1.10, 1.81)

The other 3 categories of vehicle associated injuries demonstrate basically no significant association between hospitalization rate and age in females. However, in males there is a substantial increase (compared to other ages) for ages 10 through 44 for non-traffic associated injuries (RR=3.82, 95% C.I.--3.00, 4.86), for ages 5 to 9 for collisions involving pedestrians (RR=3.20, 95% C.I.=2.30, 4.44), and for ages 5 to 14 for pedal cycle associated injuries (RR=3.87, 95% C.I.=3.04, 4.92). Rates are significantly higher for males than for females for each age group from 10 to 49 for non-traffic associated injuries (RR=6.35, 95% C.I.=4.83, 8.35), for each age group from 1 to 44 for pedal cycle associated injuries (RR=3.31, 95% C.I.=2.52, 4.34), and for ages 1 to 54 as a group for collisions involving pedestrians (RR=1.68, 95% C.I.=1.32, 2.13).

Types of Injury by Cause

Table 2 shows how the various types of vehicle associated injuries varied by primary diagnosis. For all of these injuries combined, fractures accounted for the greatest percentage of primary diagnoses (50.3%), followed by intracranial injury (12.3%), injury of internal organs (11.3%), open wounds (4.4%), contusions (3.6%), sprains and strains (2.6%), and dislocations (1.7%). Primary diagnoses represented by all other N codes (i.e., codes which specify a disease or injury) greater than or equal to 800 (i.e., injury diagnoses) accounted for only 3.4% of the total. Primary diagnoses represented by all other ICD-9 CM codes

Table 3. Number (Rate Per 100,000 Population) of Hospitalizations for Vehicle Associated Injuries by Cause and Degree of Urbanization, (Wisconsin, 1997)

Cause of injury	Rural	Intermediate	Urban
MV traffic, excluding pedestrians	1493 (90.1)	380 (60.1)	2128 (72.7)
Motor vehicle traffic, involving pedestrians	72 (4.34)	24 (3.79)	273 (9.32)
Motor vehicle, non-traffic	244 (14.7)	61 (9.64)	179 (6.11)
Pedal cycle	89 (5.36)	34 (5.37)	241 (8.23)
All other	130 (7.84)	33 (5.21)	171 (5.84)
TOTAL	2028 (122.3)	532 (83.9)	2992 (102.2)

(i.e., non-injury diagnoses) accounted for 10.4% of the total. The distribution of primary diagnoses was generally similar for all 5 categories of causes.

Types of Injury by Degree of Urbanization

Of Wisconsin's 72 counties, 11 were considered urban (Milwaukee, Waukesha, Racine, Kenosha, Dane, Rock, Sheboygan, Winnebago, Outagamie, Brown, and LaCrosse), with a total population of 2,926,520, nine were considered intermediate (Douglas, St. Croix, Pierce, Chippewa, Eau Claire, Marathon, Calumet, Washington, and Ozaukee), with a total population of 634,400, and the remaining 52 counties were considered rural, with a total population of 1,657,430.

Table 3 shows how the rates of hospitalization for various types of vehicle associated injuries varied by the degree of urbanization of the county of residence. For motor vehicle traffic collisions excluding pedestrians, rural counties exhibited the highest rates (90.1/100,000 population) and the intermediate counties exhibited the lowest rates (60.1/100,000 population). Rural counties also exhibited the highest rates for motor vehicle non-traffic associated injuries and the "all other" category. By contrast, the urban counties exhibited the highest rates for collisions involving pedestrians and for pedal cycle associated injuries.

Rates of Injury Hospitalization by County and Residence for Motor Vehicle Traffic Accidents. Including and Excluding Pedestrians

There were 15 counties with rates of hospitalization for motor vehicle collisions excluding pedestrians below 60.0/100,000 (Figure 2). Nine of these counties had rates which were statistically different than the state mean of 76.7/100,000. These 9 counties included 5 of the 9 intermediate counties, 2 of the 11 urban counties, and 2 of the 52 rural counties. There were also 15 counties with rates which were significantly higher than the state mean, including all of the counties shown in solid black in Figure 2 (which all had rates of over 118 per 100,000), plus Clark County (rate = 108/100,000). All of these were rural counties, with Richland County demonstrating the highest rate (190/100,000).

The county pattern for rates of hospitalization for motor vehicle collisions involving pedestrians was very different. There were 33 counties with rates under 3.0 per 100,000, including 3 of the 11 urban counties (Waukesha, Kenosha, and Winnebago), 5 of the 9 intermediate counties, and 25 of the 52 rural counties. Only 4 of these counties (St. Croix, Walworth, Winnebago, and Waukesha) exhibited rates which were significantly lower than the state mean of 7.1. There was only one county (Milwaukee) which exhibited a rate (17.4) which was significantly greater than the state mean. Of the 378 hospitalizations in this category, 166 (44%) resided in Milwaukee. Milwaukee was 1 of 2 counties in the state which exhibited 2 or more cases than were expected on the basis of the state mean and county population. Milwaukee exhibited 97 cases more than expected (166 vs. 69 expected), and Dane County exhibited 10 cases more than expected (37 vs. 27 expected).

DISCUSSION

This study demonstrates that rates of vehicle related injuries in Wisconsin vary greatly by age, gender, and county of residence, for each of the specific causes of injury, and are characterized by a distinct distribution of resulting injuries, with fractures accounting for over 50% of the resulting primary diagnoses. This information suggests some clues as to the causes of these injuries.

For example, the peak rates in young males suggest that behavioral factors in this group may account for many of these injuries, and the secondary peak in the elderly of both genders suggests that decreasing driving skills accompanying the aging process may also account for many of these injuries. These patterns are very consistent with national death rate data, which have consistently demonstrated higher rates in males than in females for every age group for every year from 1979-1987, and which have also consistently demonstrated the highest rates in the 15 to 24 year age group (especially in males), with a secondary peak in the 65+ year age groups.[3] This information can be utilized to suggest possible interventions, such as requiring some sort of periodic examination of driving skills for renewal of driver licences in the elderly.

What is it about young males which causes their rates to be so high? The fact that male rates are so much higher than female rates indicates that inexperience is not the sole explanation. Rather, behavioral and/or attitudinal factors which are unique to young males would appear to be a major factor. This could be related

Figure 2. Rate/100,000 of Hospitalization for Motor Vehicle Traffic Collisons (Excluding Pedestrians) by County of Residence (Wisconsin, 1997)

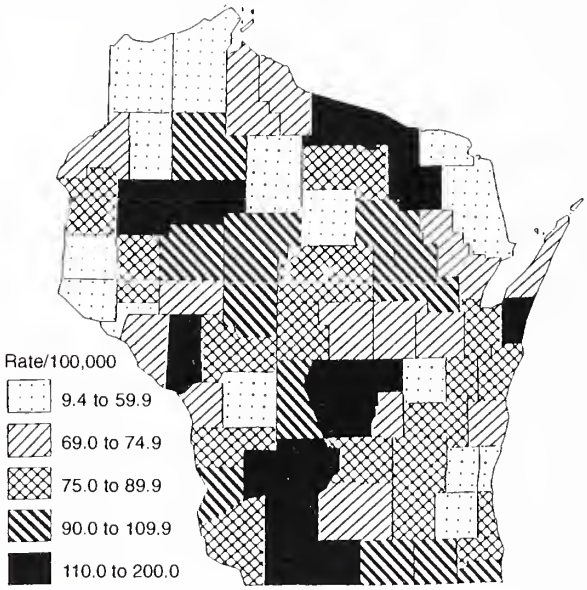
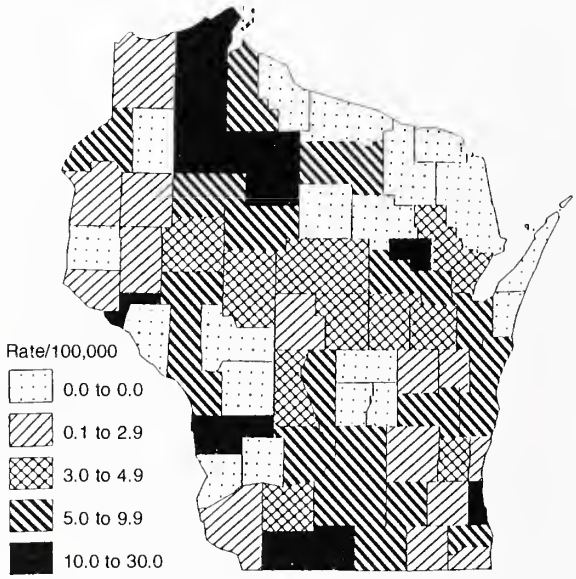


Figure 3. Rate/100,000 of Hospitalization for Motor Vehicle Traffic Collisons Involving Pedestrians by County of Residence (Wisconsin, 1997)



to driving frequency and/or to the way that young males drive. Additional studies should help to clarify this issue.

The geographic data also offers clues to possible causes and preventive interventions: the relatively high rates of motor vehicle crashes among rural residents suggests that road conditions may play a part in this. This is consistent with another study which demonstrated relatively high rates in counties with the fewest number of people per area,[11] and a study which suggested that poor roads, lack of available trauma services, and high speeds were the causes for high rates in rural areas.[12] All of these factors are potentially amenable to preventive interventions.

Largely to facilitate epidemiologic analysis of hospitalization injury data, the state of Wisconsin requires by law that all injuries which are diagnosed during hospitalization (as manifested by a diagnosis represented by an ICD-9 CM code ranging between 800 and 995) be accompanied by an E-code diagnosis, which represents the cause of the injury. Numerous researchers from other states have utilized E-codes from hospitalization data to analyze and describe injury problems in their states, and many of these have described methodological problems which pertain to such analyses. Prominent among these problems is the incompleteness of data, which results from the failure of hospitals to supply E-code diagnoses for various proportions of their injured patients.[13-19] Review of diagnosed hospitalized injuries in Wisconsin in 1997, on the other hand, has revealed that over 99% of these injuries are accompanied by an E-code diagnosis.[20] As far as we are aware, this is the only published study which uses E-code data which does not suffer from incomplete E-coding.

One possible source of confusion relating to this analysis concerns the categorization of E814 cases, motor vehicle traffic accidents involving collisions with pedestrians. In addition to the 378 cases which we categorized under this category, 1.9% (82 cases) of the other motor vehicle traffic accidents (E810 to E813 and E815 to E819) are classified as pedestrians according to the fourth digit of the E-code (i.e., a fourth digit of 7). However, such an analysis would have categorized injuries according to the person injured, rather than the cause of the injury, and we chose to focus on the latter. Nevertheless, greater specification in the coding guidelines would help to make such data more interpretable in the future.

Another possible source of confusion arises from the fact that, whereas all denominators used in this study applied to Wisconsin *resident* population estimates, numerators applied to persons *hospitalized* in Wisconsin, regardless of state of residence. Thus, 5% of all hospitalizations in this study were out-of-state residents hospitalized in Wisconsin. If a similar percent of Wisconsin residents who were hospitalized for motor vehicle associated injuries were hospitalized in other states, then these 2 sources of inaccurate numerators (with respect to the number of hospitalized Wisconsin residents) would cancel each other out. But we do not know this to be the case, and to the extent that it is not,

our calculations may either underestimate or overestimate the rates for Wisconsin residents.

The information described in this paper may be helpful in developing hypotheses regarding the causes of vehicle related injuries in Wisconsin, which in turn will be useful in designing more specific research studies, and eventually lead to the development of interventions which will decrease morbidity, mortality, and costs due to vehicle related injuries in Wisconsin. The linking of hospitalization data with police data, with subsequent analysis of these data sets, is an approach which would seem to offer great potential in this area. The Wisconsin Injury Research Center is currently pursuing the means of doing this.

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Prevention and Control of Influenza by Wisconsin Family Physicians: A WReN Supported Study

Jonathan L. Temte, MD, PhD

ABSTRACT

Problem: Although patients infected with influenza commonly present to family physicians, little is known about the usual clinical practices utilized by these physicians regarding influenza. ***Methods:*** A 1-page questionnaire was mailed to a random sample of Wisconsin family physicians. Responses were used to describe current management style and evaluate for possible relationships between management style and demographic and practice variables. ***Results:*** Completed questionnaires were obtained from 89 (29%) physicians. Influenza was perceived as a moderately important and frequent illness. Physicians estimated that 66% of their high-risk patients received immunization. Antiviral medications were infrequently used, mostly for older patients and those with comorbid conditions. The news media, other physicians and public health officials were the most common sources of information on influenza. ***Conclusions:*** Family physicians utilize current guidelines for prevention and control of influenza. Improvements can be made in mechanisms to identify high-risk patients and improved access to surveillance reports.

INTRODUCTION

Influenza is a highly communicable respiratory pathogen in Wisconsin, manifesting itself in significant annual epidemics occurring in late-autumn and winter. Illness attack rates can be especially high during epidemics, ranging from 14% to 40% in children,[1,2] and as high as 60% within nursing homes.[3] During the average year in the United States, influenza results in an estimated 130,000 to 170,000 hospitalizations, with the elderly population accounting for the highest rate of hospitalization (200-1000 admissions per 100,000 population).[4] Furthermore, the average number of deaths per year attributable to influenza in the United States is estimated at 20,000.[4] Consequently, it is not uncommon for family physicians to attend to a significant number of patients with influenza during epidemics. For example, 11% of visits to family physicians during the peak of influenza in 1989 were for influenza-like illnesses.[5]

Influenza can be recognized relatively easily on clinical grounds alone during seasonal outbreaks.[6] Determining the occurrence of influenza outbreaks, however, is contingent upon surveillance mechanisms. Four formal surveillance systems, directed by the Centers for Disease Control, exist within the United States to monitor the timing and antigenic strains of influenza. These systems include the World Health Organization Collaborating Laboratories, the State and Territorial Health Department Epidemiologists reporting system, the Pneumonia and Influenza Mortality Index for 122 U.S. Cities, and the U. S. Influenza Sentinel Physician Surveillance Network.[7] All of these systems are currently active within Wisconsin.

Unlike the case for a number of other viral infections, an effective vaccine exists for immunoprophylaxis, and moderately effective antiviral medications (amantadine and rimantadine) currently exist for chemoprophylaxis and treatment.[1,4,8,9] Because family physicians are often the first point of contact that patients have with the health care system, they can have an important role in the diagnosis and control of influenza.[10] At present, however, little is known regarding the attitudes of family physicians toward influenza, their usual practices of immunization and utilization of antiviral medications, and their sources of information on the presence of influenza within their communities. This study was conducted to explore the usual practice of Wisconsin family physicians regarding influenza.

METHODS

A 1-page questionnaire was distributed to a sample of 313 Wisconsin family physicians through a single mailing. The sample was the result of a random selection of family physicians listed by the Wisconsin Academy of Family Physicians using a computer generated random number allocation and was designed to produce a response sample size of approximately 100 active physicians.

The questionnaire (Figure 1) was designed to assess the respondents' perceptions on the significance and

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frequency of influenza within their practices, their influenza immunization behavior, their utilization of antiviral medications, sources of information on the presence of influenza in their communities and basic demographic information. Responses regarding the significance and frequency of influenza and the frequency of utilization of antiviral medications were recorded on 7-point Likert scales. Other responses were in the forms of check boxes or selections from lists of multiple options.

Descriptive statistics were used to analyze the demographics of the survey as well as the frequencies, means and medians of responses. Pearson correlation was used to explore relationships between continuous variables. Chi square statistics were used to assess the relationships between source of influenza information and practice type. Five groups of physicians were created, based upon year of graduation from training (1961-1979, 1980-1984; 1985-1989; 1990-1994; and 1995-1998), to assess for possible effects of length of practice on immunization and use of antivirals utilizing analysis of variance.

RESULTS

Of the 313 mailed surveys, 2 were returned due to changes in address. Completed questionnaires were returned from 89 of the remaining 311 Wisconsin family physicians, thus resulting in a response rate of 28.6%. Although detailed assessment of response bias was not possible, the responses were not biased by gender (X^2=1.28;d.f.=1; NS). The demographics of the sample are provided (Table 1). Three-quarters of the family physicians saw patients in nursing homes. On average, 27.6% of the reported patient population was age 65 or older.

Wisconsin family physicians perceived influenza as having a moderate effect on the morbidity and mortality of their patients (Figure 2). Likewise they indicated that influenza was moderately frequent within their practices (Figure 2). The perceived significance and frequency of influenza infection were not related to whether the physician attended to patients in nursing homes or to the percentage of older patients (aged ≥ 65 years) within the practice.

All physicians (100%) reported that they routinely immunized older patients (aged ≥ 65 years), while 98.8% reported immunizing patients with co-existing high-risk medical conditions and 91.0% reported they would provide influenza immunization upon request of patients. Whereas only 36.3% of physicians reported having mechanisms at their clinics to identify older and high-risk patients eligible for immunization, they estimated that, on average, 66.1% (range: 20%-95%) of their older and high-risk patients were immunized.

Table 1. Demographics of Survey Sample

Mean Age of Physician		41.5 years
range		29-64 years
Gender	female 31.8%	male 68.2%
Year of Residency Completion (median)		1987
range		1961-1998
Type of Practice		
solo		0.0%
single specialty group		38.6%
multi-specialty group		53.4%
residency training site		8.0%
Size of Community		
0-2,000		2.3%
2,000-5,000		20.0%
5,000-10,000		23.5%
10,000-50,000		9.4%
50,000+		44.7%
Sees Patients in Nursing Homes	yes 75.9%	no 24.1%
Weekly Patient Volume		
0-40		10.2%
41-80		34.1%
81-120		47.7%
120+		8.0%
Percent of all Patients in Age category		
0-4 years		15.2%
5-24 years		19.8%
25-64 years		37.5%
65+ years		27.6%

Figure 1. Questionnaire used for this study.

WReN – Wisconsin Family Physician Influenza Survey

1. How significant is influenza infection in your practice?
   no effect on morbidity or mortality — strong effect on morbidity and mortality
   1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7

2. How frequently do you diagnose influenza syndrome in your practice?
   never — frequently
   1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7

3. Which of your patients routinely receive the trivalent influenza vaccine?
   ___ 65 + years ___ co-existing high-risk illnesses ___ upon request

4. What percent of your elderly or high-risk patients are immunized? ___ %

5. Do you utilize any mechanism to identify elderly or high-risk patients? Yes No

6. How do you know when influenza A is present in Wisconsin?
   ___ patients
   ___ physician colleagues
   ___ news media
   ___ public health officials
   ___ surveillance systems
   ___ practice organization
   ___ _____

7. To whom do you usually prescribe amantadine and/or rimantadine?
   ___ children
   ___ 65 + years
   ___ co-existing high risk illnesses
   ___ upon request
   ___ only in first 48 hours of symptoms
   ___ patients with high-risk contacts
   ___ _____

8. How often do you prescribe antiviral medications for patients with influenza?
   never — always
   1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7

9. Age ____

10. Gender F M

11. Year of graduation from residency training ____

12. Type of Practice
   ___ Solo
   ___ FP only group
   ___ Mixed Group
   ___ Residency

13. Size of Community (population)
   ___ 0 - 2000
   ___ 2000 - 5000
   ___ 5000 - 10,000
   ___ 10,000 - 50,000
   ___ 50,000 +

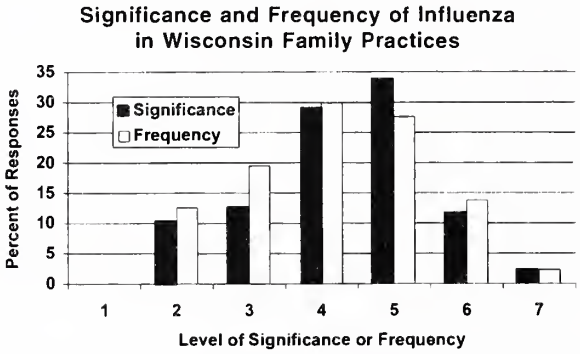
14. Do you see patients in nursing homes? Yes No

15. On average, how many patients do you see per week?
   ___ 0 - 40
   ___ 41 - 80
   ___ 81 - 120
   ___ 120 +

16. What % of your patients fall into the following age categories?
   ___ % 0 - 4
   ___ % 5 - 24
   ___ % 25 - 64
   ___ % 65 +

Please return to WReN in the self-addressed stamped envelope by October 23rd, 1998 Thank you

Figure 2. Perceived effect of influenza infection on morbidity and mortality and frequency of diagnosis within Wisconsin family practices. Figure provides the percent of responses at each level.



For significance: 1 = no effect on morbidtiy or mortality, 7 = strong effect on morbidity and mortality.
For frequency of diagnosis: 1 = never, 7 = frequently.

The presence of clinic mechanisms for identifying older and high-risk patients and the estimated rate of immunization were not significantly related to nursing home practice or the percentage of older patients (aged ≥ 65 years) in the practice. There were no significant relationships between immunization rates and the presence of identification mechanisms, community size, practice volume, or length of time since training.

Antiviral medications (amantadine and rimantadine) were reported to be prescribed infrequently to patients presenting with influenza (Figure 3). Most physicians (68.5%) reported they would usually prescribe antivirals only during the first 48 hours of symptoms. Whereas approximately half of the physicians reported that they routinely prescribe antiviral medication to influenza patients with co-existing high-risk medical conditions (55.1%) and to older patients (43.8%), only 29.2% reported prescribing to patients with high-risk contacts and 21.4% reported prescribing such medications upon request. Antivirals were rarely prescribed to pediatric patients (9.0%). The use of antiviral medications was positively correlated to the perceived significance of influenza in the physician's practice ($r=0.295$; $n=85$; $P<0.01$) and to the perceived frequency of diagnosis of influenza ($r=0.392$; $n=86$; $P<0.001$). In addition, physicians completing training between 1980 and 1989 were more likely to prescribe antivirals than were other physicians (ANOVA: $F_{[4,74]}=2.63$; $P=0.041$). Community size and practice volume were not related to the reported level of use of antiviral medications.

Physicians identified the news media as the most commonly utilized source of information (73.0%) regarding the presence of influenza in their community (Figure 4). Physician colleagues (69.7%) and public health officials (64.0%) were also commonly cited sources of information. About half (48.3%) of the physicians reported that they used their own patients as a source of information regarding the presence of influenza, while only one-third (33.7%) reported using influenza surveillance systems. Practice organizations were rarely utilized (13.5%). Family physicians within mixed-specialty practices were more likely to make use of public health officials (76.6% vs. 48.8%; $X^2=7.449$; $df=2$; $P<0.025$) and practice organizations (23.4% vs. 2.4%; $X^2=8.215$; $df=2$; $P<0.025$) than were physicians in single specialty groups or at residency sites. Residency-based physicians were much more likely to use influenza surveillance systems (71.4% vs. 30.9%; $X^2=6.122$; $df=2$; $P<0.05$). No other significant relationships were elucidated.

DISCUSSION

This survey was limited by a relatively low, but not unexpected response rate. Although no response bias was noted for gender, more detailed analysis of response bias was not possible. Consequently, conclusions need to be interpreted with some caution. Family physicians were targeted in this study as separate listings of other primary care providers are not easily available from other professional groups.

The lack of physician awareness regarding the significance of influenza has been identified as a major challenge in the control of influenza.[10] It is clear from this study that a majority of the responding family physicians see influenza at a moderate to high frequency within their patients (74%) and place a moderate to high degree of significance in influenza's effect on morbidity and mortality (77%). In such a context, directed physician education may serve to enhance appropriate immunization and treatment practices.

The effectiveness of the trivalent influenza vaccine has been well-established. With good matching between the vaccine and circulating strains of virus, the vaccine can prevent illness in 70% to 90% of healthy individuals under the age of 65.[4] In elderly patients, influenza vaccination may decrease clinical influenza by as much as 50%[8] and decrease hospitalizations for pneumonia by 45%.[9]

The Advisory Committee on Immunization Practices (ACIP) strongly recommends influenza vaccine for persons at high risk for complications of influenza including persons aged 65 years and older, residents of nursing homes and chronic care facilities, adults and children with chronic medical conditions, especially those with cardiac or pulmonary disease, children receiving long-term aspirin therapy and women who will be in the second or third trimester of pregnancy during the influenza season.[1,4] In addition, health care workers and any person requesting immunization should receive the vaccine.[4]

Figure 3. Frequency of prescribing antiviral medications to patients with influenza in Wisconsin. Figure provides percent of responses at each level of prescribing.

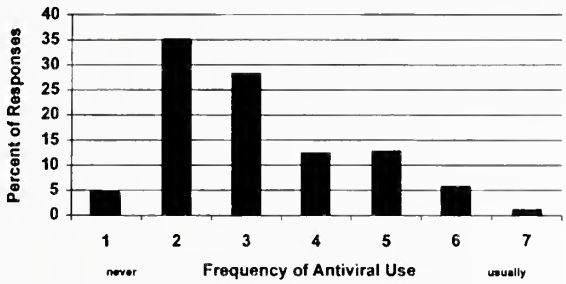
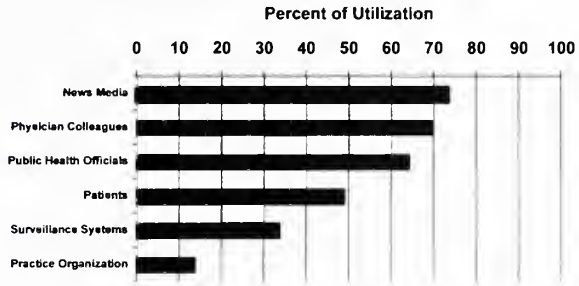


Figure 4. Percent of Wisconsin family physicians utilizing sources of information on the presence of influenza within their communities.



Wisconsin family physicians reported that they routinely immunized elderly patients (100%) and patients with co-existing, high-risk illness (99%). Moreover, most physicians (91%) reported that they will immunize patients upon request. Such willingness to immunize resulted in an estimate that 66% of elderly or high risk patients receive immunization in Wisconsin family practice clinics. This is in good agreement with a 1997 national survey indicating that 65.5% of persons aged 65 year or older received influenza vaccine during the preceding year.[11]

The utilization of formal mechanisms by Wisconsin family physicians to identify elderly and/or high risk patients was low (36%). Nevertheless, there are excellent examples of computer reminder systems[12] and feedback to physicians[13] which have significantly increased influenza immunization rates. Clinical mechanisms should be utilized to identify patients at high risk and ensure that immunization occurs.[4] Office procedures which can enhance compliance in ambulatory settings are discussed in Zimmerman et al.[1]

Amantadine hydrochloride and rimantadine hydrochloride interfere with replication of influenza type A, but not type B, viruses and can be used in chemoprophylaxis and treatment.[4] Both drugs are 70% to 90% effective in preventing illness, but should not be used as substitutes for vaccination unless the influenza vaccine is contraindicated.[1] If taken within the first 48 hours of influenza symptom onset, they can reduce the signs, symptoms and severity of influenza A infection.

In general, antivirals are used sparingly by Wisconsin family physicians. Most physicians (81%) reported providing these medications on occasion or less frequently. Utilization was related to the perceived significance and frequency of influenza in the physicians' practice and to the length of practice experience. These medications were reported to be prescribed at higher frequencies for patients with co-existing high-risk illness (55%), elderly patients (44%) and only during the 48 hours of illness (69%).

Because of rapid acquisition of resistance to these medications, caution should be taken when providing antivirals to patients with high-risk contacts. Accordingly, only 29% of physicians reported routinely providing antivirals in this context. There also appeared to be reluctance to prescribe these medications upon request (21%) and to children (9%). No definite guidelines exist on the use of antivirals medications for treatment, but they can be considered for patients presenting with influenza symptoms during outbreaks within the first 48 hours of symptoms.

Timing of influenza vaccination is important as antibody levels can fall if the vaccine is administered too far in advance of epidemics.[4] In addition, appropriate clinical diagnosis and selection of treatment is dependant upon knowing when influenza is present and its type. The news media was the most commonly identified source of information on the presence of influenza in the community, being used by 73% of respondents. Nearly 70% of physicians utilized physician colleagues. These sources are of concern because they potentially lack strict criteria for influenza reporting. Public health officials were used at a reasonable high rate (64%), more commonly by family physicians in multi-specialty clinics. Patients themselves were used by nearly half (48%) of the physicians to identify the presence of influenza. Formal influenza surveillance systems were greatly underutilized, receiving the attention of only a third of physicians (34%). Family practice residency faculty were much more likely to use these sources than were other physicians (71% vs. 31%).

Two mechanisms of influenza surveillance currently exist within Wisconsin. First, the Wisconsin State Laboratory of Hygiene - Virology Laboratory maintains a Laboratory Information Network (LIN), tying together all clinical virology labs in Wisconsin, and a Clinician Education Network (CEN), which conducts surveillance of respiratory illness through clinical specimens sent for virus culture. The presence of influenza in Wisconsin, as documented by positive virus culture, is therefore determined by strict criteria and then relayed to the CDC. Identification of antigenic

strain and type is also routine. Second, the Wisconsin Division of Public Health supports the Wisconsin Sentinel Physician Program. This program is a subset of the CDC's U.S. Influenza Sentinel Physician Surveillance Network and is comprised of approximately 30 Wisconsin family physicians. Each week the physicians submit their weekly total number of patients seen and the number of patients with influenza-like illness (fever ≥ 100°F and cough or sore throat) divided into age groups. These two systems provide very accurate and up-to-date information on the presence of influenza in Wisconsin. Summary information on influenza activity can be obtained directly from the CDC by using either the CDC FAX Information System (888-232-3299) and requesting fax document number 231100 or via the internet using the Weekly Influenza Summary Update website (http://www.cdc.gov/ncidod/diseases/flu/weekly.htm).

In summary, Wisconsin family physicians report that influenza is a frequent and significant illness in their practices. Appropriate guidelines are used for immunoprophylaxis and reasonably high rates of immunization are attained. Antiviral medications are used sparingly, but appropriately. Areas for improvement in the prevention and control of influenza include: (1) enhancing mechanisms to identify elderly and high risk patients for influenza immunization and (2) increasing the utilization of influenza surveillance systems in Wisconsin.

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I thank Mary Stone and Dr. John Beasley of the Wisconsin Research Network (WReN) for assistance. Staff of the Wisconsin Division of Public Health and Dr. Peter Shult of the Wisconsin State Laboratory of Hygiene provided useful comments on this manuscript. The Wisconsin Academy of Family Physicians, through the Wisconsin Research Network (WReN), provided WAFP membership lists and mailing labels.

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Proceedings from the 1998 Wisconsin Primary Care Research Forum and 12th Annual WReN Meeting

Edited by John Beasley, MD

The 12th Annual Meeting of the Wisconsin Research Network (WReN), the 1998 Wisconsin Primary Care Research Forum, was held October 30-31, 1998 in Appleton, WI. WReN, a statewide network of more than 600 primary care professionals interested in practice-based research, is organized under the auspices of the Wisconsin Academy of Family Physicians (WAFP) Research Committee and is supported by the WAFP and the Wisconsin Institute of Family Medicine (WIFM). This 2-day conference is planned as a working meeting for the participants and includes presentations by invited speakers, original research presentations by primary health care professionals, and workshops related to conducting research in the office setting. The following abstracts represent presentations of original research.

THE IN-VITRO ISOLATION OF BLASTOMYCES DERMATITIDIS FROM A WOODPILE IN NORTH CENTRAL WISCONSIN

DJ Baumgardner, DP Paretsky (Milwaukee, WI)

Purpose: Environmental isolations of the dimorphic fungus, *Blastomyces dermatitidis*, the etiologic agent of blastomycosis, are rare, and have usually involved animal inoculation techniques.

Methods: Nineteen environmental samples were obtained from 2 adjacent properties, along the Wisconsin River west of Eagle River, WI, on November 10, 1997. Five out of 11 dogs kept on these 2 properties over the past 14 years had been diagnosed with blastomycosis. Isolation was attempted by placing samples in a neutral aqueous solution of allantoin, Tween-80, potassium phosphate and magnesium sulfate, incubated at 37°C for 22 days, followed by plating on yeast-extract phosphate agar at room temperature.

Results: One of 19 samples was positive for *Blastomyces dermatitidis*. The organism grew from 1 of 3 samples taken from a wood pile which was 82m from the Wisconsin River, and 5m from a kennel which had housed 4 of the dogs which had been diagnosed with blastomycosis.

Conclusions: Environmental microfoci involving rotted wood may be a common source of *B. dermatitidis*. Refinements of this technique may help further elucidate the ecological niche of this fungus.

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INFLUENCE OF MANAGED CARE ON TREATMENT OF RESPIRATORY INFECTIONS

NA Brauer (Eau Claire), WJ Hueston (Charleston, SC)

The purpose of this study was to determine if shifting cost-risk to physicians in a managed care setting affected the evaluation or treatment of upper respiratory infections (URIs) and acute bronchitis. A random sample of patients who had been diagnosed with a URI or acute bronchitis in a 12-month period was generated for both a health maintenance organization (HMO) and a large multi-specialty clinic with a primarily fee-for-service (FFS) population. Retrospective chart reviews were performed and the data statistically analyzed. It was found that for both URIs and bronchitis, the HMO population was more likely to be treated with antibiotics than the FFS group. Further analysis showed that though HMO physicians prescribed antibiotics more frequently, they were less likely to use other medications in their treatment of bronchitis. Patients in the HMO group were also significantly less likely to have diagnostic tests performed during their visit than those in the FFS group. In conclusion, it appears that shifting cost-risk to physicians through managed care has been successful in reducing primary care costs by limiting diagnostic testing, but has not reduced the prescribing of antibiotics for URIs or bronchitis.

AN OUTBREAK OF BELL'S PALSY AT A FREE CLINIC

A Lux, DJ Baumgardner, L Carson, MK Murphy (Milwaukee, WI)

Purpose: The annual incidence of Bell's palsy is 20-30/100,000 and lacks seasonality or sex differential. Clusters of cases are extremely rare. Recent evidence suggests herpes simplex virus (HSV)-1 as the etiologic agent of most "idiopathic" Bell's palsy cases. This study characterizes an apparent outbreak of Bell's palsy seen at a free clinic in Milwaukee.

Methods: Case identification by clinic chart review, structured interview and HSV and Lyme serology from cases and a clinic control group. Statistical analysis using Epi-Info.

Results: Four cases of Bell's palsy presented to the clinic with dates of onset June 9-July 3, 1997. This represents a 26.7-fold higher than anticipated incidence for the months of June and July. There was no obvious relationship among the cases. Mean IgG HSV and Lyme titers did not differ between 3 tested cases, and a control group of 15 patients similar in age, sex, zip code and medical history.

Conclusions: An unexplained Bell's palsy outbreak

occurred in this free clinic population. This small study failed to identify HSV-1 as the etiologic agent based on IgG serology.

ALTERNATIVE MEDICINE: A QUALITATIVE STUDY

B Barrett (Madison)

Objective: To investigate the use of alternative and complementary health care in Madison, WI.

Methods: Semi-structured, in-depth interviews looking at knowledge, attitudes and behaviors. Seventeen patients who used both conventional and alternative therapies within the past year were randomly selected from telephone listings. Twenty alternative practitioners were selected to represent the major modalities. Topics discussed included healing philosophy, choices of therapeutic methods, and concurrent use of multiple modalities and referral patterns. An 8-member multidisciplinary team used standard qualitative methods to analyze the transcripts.

Results: Four major themes emerged from the interview data: (1) holism, (2) empowerment, (3) access, and (4) legitimization. Both patients and providers distinguished between the societally legitimized and widely accessible but disempowering and mechanistic attributes of conventional medicine and the holistic and empowering but relatively less accessible and less legitimate nature of alternative healing methods. There was a strong call for integrating the best aspects of both.

Conclusions: Practitioners and users of alternative therapies in the Madison area confirmed the complementary nature of unconventional health care, and called for a more integrated and accessible health care system.

A STUDY TO DETERMINE THE EXTENT OF ANTI-TETANUS VACCINATION IN THE ELDERLY PATIENTS OF AN URBAN MILWAUKEE FAMILY PRACTICE RESIDENCY PROGRAM

CD Fraser, DJ Baumgardner

Purpose: Tetanus, although rare, continues to be a threat to life for the elderly, despite the presence of a safe, effective, cheap vaccine. This study was done to determine how many of our clinic's elderly patients were vaccinated in accordance with the guidelines of the AAFP and the AGS. We also assessed whether simple physician education could improve our statistics.

Methods: The charts of 100 consecutive over-65-year-old patients visiting the clinic were reviewed for tetanus status, influenza and pneumococcal vaccination, screening by breast examination and discussion of flexible sigmoidoscopy. An intervention consisting of a brief lecture and follow-up handout concerning tetanus was then made to all the providers in the clinic. After allowing a settling time, the charts of the next 100 patients over 65 visiting the clinic were similarly reviewed.

Results: 31% of pre-intervention charts showed up-to-date tetanus vaccination, compared with 30% in the post-intervention group. Using all charts reviewed as 1 group of 200, documented influenza and pneumococcal vaccination rates were 63% and 52% respectively; breast exam and flexible sigmoidoscopy discussion rates were 66% and 34%.

Conclusion: Tetanus vaccination was adequate in 1/3 of the patients sampled, and this was unchanged by the intervention. The rates of other vaccinations and breast and bowel cancer screening compared well with those from other similar institutions.

FACTORS THAT INFLUENCE PATIENTS' COMPLETION OF ADVANCE DIRECTIVES

VM Cloutier, L Marchand (Madison, WI)

Objective: Lack of advance directives can result in inappropriate care at the end of life. This study used qualitative methods to explore the factors that influence older ambulatory patients in completing advance directives.

Methods: Ten in-depth interviews of 5 patients who had completed advance directives and 5 who had not. Patients were age 60 or older and received care at the Belleville Clinic. A team of 4 analyzed data, and generated themes using an editing method.

Results: Four major themes were generated by the data: (1) there are significant barriers to the completion of directives; (2) the physician role is as educator and not decision maker; (3) decision making is a personal and family issue; and (4) quality of life is more important than quantity.

Conclusions: The 2 groups of patients were not significantly different except that the group that completed directives was slightly less confused about the documents. Patients wanted to maintain autonomy over end-of-life decision making, and felt that physicians can initiate and educate about directives, and that this could most effectively be done in a routine manner in the office or in the community.

TOBACCO USE STATUS AND COUNSELING RATES AFTER ACCEPTANCE OF A CLINICAL GUIDELINE

D Pine (Minneapolis, MN)

Background: Smoking cessation counseling is an effective intervention in clinical practice, but has not been routinely provided in community-based practice. A smoking cessation guideline was accepted by a large multispeciality group practice in 1994. The guideline recommends that physicians establish an office system to routinely identify tobacco users and to cue and support clinicians to provide cessation counseling. The guideline recommends assessing the user's readiness-to-quit stage and tailoring counseling to that stage. A guideline training session for medical and nursing staff was carried out at each primary care site. A health profile form for documenting tobacco use status and a flow sheet to prompt and enable effective counseling were developed. Our objective in this study was to assess and describe the rates of smoking status assessment and smoking cessation counseling at 2 clinic sites.

Methods: We audited the medical records for 50 patient visits per physician (n=450,1995; n=500,1996).

Results: Assessment of smoking status improved from 60% in 1995 to 79% in 1996 ($p<.05$). Readiness staging was carried out for 9% of identified users in 1996. The percentage of users who were advised to quit was 24% in 1995 and

23% in 1996. The health profile form was used frequently near the end of 1996; the flow sheet was not used.

Conclusions: The low tobacco cessation counseling rate after introduction of a clinical guideline suggests that additional strategies are needed in order implement the guideline and improve cessation counseling.

CHLAMYDIA PNEUMONIAE INFECTION IS ASSOCIATED WITH SEVERITY OF ATHEROSCLEROSIS IN PATIENTS UNDERGOING PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY (PTCA)

DL Hahn (Madison, WI), A Pasternak (Reno, NV), A Hahn, P McBride, P Saikku (Madison, WI)

Background: *Chlamydia pneumoniae* infection has been suggested as a causal factor in atherosclerosis on the basis of seroepidemiologic associations, organism identification within atherosclerotic plaque and preliminary treatment trial results showing possible benefit of antimicrobial treatment in unstable angina and as secondary prevention of myocardial infarction. Seroepidemiologic associations have been based on the results of case-control studies comparing acute and/or chronic atherosclerotic heart disease with nonatherosclerotic controls. No previous studies have reported on *C. pneumoniae* antibody patterns within an atherosclerotic disease cohort stratified on the basis of disease severity.

Methods: As part of a larger prospective cohort study of causes for restenosis, we measured *C. pneumoniae* antibody titers in 95 patients undergoing percutaneous transluminal coronary angioplasty (PTCA) between October 1, 1994 and September 30, 1996. Three categories representing increasing severity of clinical disease were determined: (1) first PTCA on a native vessel, without a prior history of other cardiovascular interventions (Category 1); (2) 1 or more previous PTCAs on the same native vessel without interventions on other vessels (Category 2); or (3) history of 1 or more PTCAs on a different vessel and/or previous coronary artery bypass grafting (CABG) (Category 3).

Results: Clinical disease severity category was positively associated with *C. pneumoniae* antibody prevalence (Table 1).

After controlling for age, sex and current smoking by logistic regression (Category 1 as reference), the odds ratio (OR) for association of chronic antibody (a or b or c) with Category 2 was 1.3 (95% CI, .70-2.6) and with Category 3 was 2.4 (95% CI, 1.3-4.7) (logistic test of trend in the ORs, P=.005).

Conclusions: The "dose-response" association of *C. pneumoniae* antibodies with clinical disease severity is additional epidemiologic evidence in favor of a causal association of infection and atherosclerosis. Association of serum IgA (mucosal) antibodies with the most severe disease category suggests that chronic lung infection may be a risk factor for multivessel atherosclerosis.

Table 1. *C. pneumoniae* antibody prevalence at PTCA, no. (% of clinical category)

	Clinical severity category			
Serologic category	1 (n=20)	2 (n=35)	3 (n=40)	P-trend
a) IgG≥128	2 (10)	8 (23)	14 (35)	.032
b) IgA≥16	0 (0)	0 (0)	8 (20)	.002
c) CIC*≥2	3 (15)	8 (23)	16 (40)	.030
a or b or c	4 (20)	10 (29)	23 (58)	.002

*chlamydial immune complexes

THE THIAZIDE ZONE: TEACHING PRACTICE MANAGEMENT THROUGH HUMOR

JR Brill (Milwaukee)

Practice management has traditionally been a difficult area to teach to residents and students as the motivation for changing behavior differs from the economic incentives of practicing physicians. Practice management continues to increase in importance for the education of students and residents. Regardless of the setting in which graduates practice, physicians will encounter escalating pressures to enhance the quality of care while at the same time decreasing costs. Telephone calls for refills of prescriptions are an unreimburseable cost to a medical office and also increase the risk of error relative to refilling prescriptions at the time of office visits.

In this study, we created a short, humorous videotape demonstrating the utility of refilling prescriptions at the time of office visits. The tape was incorporated into the practice management curricula of the University of Wisconsin Department of Family Medicine in Milwaukee. The primary outcome measure of this approach was a 2-way comparison of clinic calls for prescription refills compared to a control clinic (Appleton Family Practice) where a similar content message was given to the residents and faculty but in a non-humorous fashion. Rates of change were compared between the 2 clinics and from prior to the study.

One-month follow-up showed increases in phone calls to both clinics, corresponding to the annual graduation/matriculation resident cycle. The humor clinic phone calls increased 9%, the controls 30% ($p<0.05$).

Humor may be an effective medium for changing clinician behavior. Longer term follow-up is needed.

A SIMPLE OFFICE INTERVENTION TO IMPROVE COMPREHENSIVENESS OF CARE

TL Hankey (Waupaca, WI)

Comprehensiveness of care is 1 of the 2 defining characteristics of family practice, along with continuity. It is surprising to realize that very little is written about comprehensive care as compared to continuity of care. For the latter, there is an abundant literature and there are several well standardized measures of continuity. For comprehensive care the scanty literature reveals no agreement on the definition of "comprehensiveness," whether it describes the scope of practice or whether it can be used to describe the services provided at a single office visit.

The hypothesis of this study is that by implementing a simple procedure, the comprehensiveness of care at an individual visit could be increased. The definition of comprehensiveness adopted is related to the number of problems dealt with at the visit, the number of administrative functions necessary to manage the patient's care, the

number of services delivered for general or preventive care and for each problem.

The intervention was to "preview" charts by pulling the charts 2 days prior to the actual visit and completing a brief but formal review by both the nurse and physician. A specific preview form was designed to direct this review. The nurse paid special attention to the preventive aspects of care and the physician reviewed the medication list, problem list, and progress notes.

A score sheet was designed for measuring the degree of comprehensiveness which was standardized to be reproducible by different scorers and to represent the concept of comprehensiveness of family practice care delivered at a single office visit. The tool is easily learned and after only 5 chart reviews, the time required was less than 5 minutes per chart.

After reviewing the first 58 charts or pairs of visits, 19 could not be included because there was not a matched control visit during the previous 1 to 12 months. There are 39 paired visits in the preliminary analysis. Of these, it was found that the comprehensiveness score did not change in 7, increased in 21, and decreased in 11.

The average score on all visits was 3.977. The average score for the "before preview" visits was 3.558 and the average for the visits after the preview was implemented was 4.395. The average increase in comprehensiveness score was +0.814. This represents a percentage increase of 23%.

MIND BODY SKILLS GROUPS – MULTIDISCIPLINARY, EXPERIENTIAL TRAINING FOR HEALTH CARE

J Slane (Milwaukee, WI)

Our faculty practice is charged with pioneering models of alternative medicine. Our initial challenge was finding support for alternative therapies within our health care organization (HCO). We decided to "grow" this support by training health care providers, clergy and administrators from our HCO in mind-body skills. Originally designed as experiential groups for patient teaching, we adapted the groups to teach health and human service providers. Skills taught included meditation, guided imagery, autogenics, and other modalities.

Four 6-week sessions were held over 1 year. Forty-eight individuals participated. Pre-testing and post-testing of skills and attitudes were obtained. Ten students participated in a post-course focus group for in-depth evaluation. Six participants were interviewed individually 6 months after the course was completed.

Eighty percent of participants had incorporated at least one modality into their professional practice. Autogenics was the most often used modality. Thirty-three percent of participants continued daily meditation. The focus groups revealed that the experiential nature of the course was key to its success. Attitudes toward use of alternative therapies became much more positive in the majority of participants. We will also report on how teaching this course has affected referral patterns in our practice and our HCO.

DO CHANGES IN THE MEDICAL RECORD AFFECT PATIENT RISK SCREENING AND MANAGEMENT?

PE McBride, MB Plane, G Underbakke (Madison, WI)

The HEART NIH trial tested methods to improve coronary heart disease (CHD) prevention services in 45 primary care practices. The goal was to improve prevention services through increased screening and management of CHD risk. The project introduced quality improvement consultations (CN) or paid prevention coordinator (PC) alone, or in combination (CN/PC), and compared medical record use, screening and management outcomes with a control (C) group. Data were collected from medical records, patient questionnaires and physician surveys at baseline and 12 months into the intervention. Ninety-three percent of the practice groups set goals to improve prevention services. Implementation or improvement of recommended record forms such as problem list, flow sheet, vital sign stamp, and chart labels were the most common goals, followed by increased screening, and then improvements in risk management. Documentation of risk screening increased over the course of the study, as did use of the recommended medical record risk screening forms.

Outcome measures show that the use of a recommended screening form in the medical record was greatest in the CN/PC group compared to C group (69% v. 50%, $p<.0001$) at 12 months. For all groups, the presence of CHD risk screening information on recommended medical record forms was associated with higher rates of documented CHD risk management. At 12 months, 66% of patients with CHD risk who had screening information recorded on recommended forms received management services, while 48% of patients with screening information recorded elsewhere, such as in the visit note only, received these same services ($p<.0001$). This use of recommended medical record screening forms and its association with risk management persisted beyond the intervention period. We conclude that practice groups will set goals to improve CHD risk screening and management, and will increase their use of medical record forms to record screening information. This routine use of record forms for screening is directly associated with a greater documentation of CHD risk management and is key to establishing an organized system of CHD risk screening and management.

PREDICTING EPIDEMICS OF INFLUENZA A IN WISCONSIN

JL Temte, A Rasmussen, PA Shult, CJ Kirk (Madison, WI)

Background: Influenza A is characterized by recurrent seasonal epidemics which occur during late-fall or winter in Wisconsin. Although cold environmental temperatures have been implicated as contributing to the occurrence of epidemics, there have been no robust models for the temporal prediction of influenza epidemics.

Methods: We reviewed and collated data comprised of positive influenza A cultures gathered over an 18-year period and processed at the Wisconsin State Laboratory of Hygiene Virology. The statistical peak (mean) date for each year was determined and used as the independent variable in a multiple linear regression model utilizing environmental and social factors as dependent variables.

Results: Mean dates of occurrence of influenza A were determined for 13 separate annual epidemics (1927 cases) between 1980 and 1997. The grand mean date of peak

influenza activity in Wisconsin was January 12, but peaks occurred as early as December 8 and as late as February 5. A highly significant predictive model explaining 62% of variation in the timing of peak influenza was found in which the timing of the influenza peak was dependent upon the freezing date of Lake Wingra (Madison, WI) and the date of Thanksgiving (r^2=0.662; $F_{[2,10]}$=8.23; P=0.008). Even during the aberrant 1997-98 influenza season, which was altered by the El Nino Southern Oscillation phenomenon, this model predicted a peak date of January 19, which compared favorably to the actual peak date of January 25.

Discussion: Influenza A activity in Wisconsin is dependent upon long-term climatic conditions, particularly cold temperatures, and may be modified by social mixing around a major holiday.

WHEN AND WHERE ARE YOUR LECTURES? A NATIONAL SURVEY OF FAMILY PRACTICE RESIDENCIES CONFERENCE

SJ Hill, DJ Butler, C Guse (Milwaukee, WI)

Introduction: The accreditation guidelines for family practice residencies require that all programs have didactic conferences designed specifically for residents. Descriptions of conferences in the literature have focused primarily on content.

Problem Statement: There is a lack of information about how family practice residencies structure conferences (the how, when and where). Further, there is no information about who is leading conferences, if environment influences format, or if there are differences in structure between types of programs.

Method: A survey was mailed to a random, stratified sample of 331 family practice programs. Categories of programs included community-based, university-based and military. Categorical data were analyzed using Pearson's chi-square.

Main Results:

1. Response rate equaled 84%.
2. There is a significant difference between type of program and number of conference days/hours. Medical school based programs devote significantly less time to lectures (p<.001).
3. Community based family physicians give only 7% of lectures.
4. Pharmaceutical sponsorship of lectures is low. A significant difference was found between medical school (4%) and military programs' (10%) use of pharmaceutical sponsors (p=.003).
5. Programs using multiple sites for conferences had significantly greater numbers of lecture hours/days (p<.001).
6. For all programs, 53% of lectures are given by program faculty/residents.
7. Forty-two percent of programs have made changes within 2 years.
8. The noon conference is most common.

Conclusions: This study provides family practice residencies a base of comparison for their conferences. Conference formats are influenced by program type.

TOBACCO ADVERTISING IN MAGAZINES IN THE MEDICAL OFFICE

J Lochner (Madison, WI)

Context: The role of tobacco advertising in the initiation and continuation of smoking has been at the forefront of much research and many allegations of wrongdoing. One simple way for physicians to show their opposition to tobacco advertising is to not subscribe to publications that carry such advertising. Alternatively, physicians may choose to place stickers with anti-tobacco messages on covers of magazines that carry tobacco advertising.

Objective: To collect data to facilitate the elimination or neutralization of tobacco advertising in magazines in the medical office.

Research Design: A mailed survey conducted in March 1998 of 220 family practice clinic liaisons in the state of Wisconsin.

Participants: A total of 139 out of the 220 family practice office liaisons returned surveys for a response rate of 63.2%.

Results: Twenty-six percent of family practice offices in Wisconsin have eliminated magazines with tobacco advertising from their offices and 17% have used other methods to oppose tobacco advertising such as placing stickers with anti-tobacco messages on ads. Twenty-six percent of responders replied that there was a specific reason why they had not taken action on this issue; lack of time was the most cited reason. Fifty-six percent responded that they would use stickers with anti-tobacco messages if they were sent to them. Seventy percent said they would use a magazine ordering service that offered only magazines that were tobacco-free.

Conclusions: The majority of Wisconsin family practitioners' offices do not have any restrictions on tobacco advertising in magazines in their lobbies. Most of these physicians would take some action if it were easy to do and not time-consuming.

THE PILL BOX: HOW WELL ARE WE EDUCATING OUR PATIENTS ABOUT THEIR MEDICATIONS? AN ALL RESIDENCY RESEARCH PROJECT

ED Burtea, N Majid, B Pribbenow, DJ Baumgardner, A Lux, J Carlson, O Conty, the St. Luke's Family Practice Program Residents and Staff (Milwaukee, WI)

Purpose: Educated patients appear to be more compliant regarding outpatient medication follow-up, however, there is little in the recent literature regarding how well informed family practice patients are regarding their medications. The purpose of this study is to evaluate how effectively we are educating our patients about their medications.

Methods: A written survey was distributed to 400 patients at our urban and central city site family practice centers in Milwaukee. Patients were asked to list their medications, purpose of each medication, at least one side effect they were told about, and whether or not the medication is helping them. Medication tracking mechanisms and their main source of medication information was also asked.

Epi-info was used to analyze data.

Results: Rate of return of surveys was 44%. Majority of patients were on 1-3 drugs; 82% knew the purpose of all of their medications; 51% could not name one side effect of any medication while 26% could name one side effect of all of their medications; 65% felt all of their medications were helping while 21% felt none of their medications were helping. Sixty-three percent had a medication tracking system. Fifty-one percent receive their information from their doctor, NP or PA while 23% received their information from their pharmacist.

Conclusions: We are doing a good job educating patients on the purpose of their medications; however, we need improvement in educating patients on the side effects of their medications. We also need to emphasize the importance of bringing a list of medications to each office visit and need to help patients keep better track of their medications.

PTYALISM IN PREGNANT WOMEN

M Van Dinter (Madison, WI)

Ptyalism is a medical condition characterized by an excessive secretion of saliva and is commonly found in pregnant women. The purpose of the study is to investigate the incidence of ptyalism and to explore possible correlates of this condition as a basis for guiding future avenues of research.

A questionnaire was developed and pilot tested based on a review of the literature and on letters received from women who had experienced ptyalism. Six primary care clinics affiliated with the University of Wisconsin Department of Family Medicine located in urban, suburban and rural areas of the state provided a pool of potential study participants.

Eleven percent of the respondents indicated that they had experienced salivary changes during pregnancy contrasting sharply with the estimated 1% incidence reported in the obstetrical literature. The majority of women reporting salivary increase during pregnancy were married (62%), between the ages of 17 and 25 (86%), Caucasian (59%), with one year of post-high school education (58%) and income less than $20,000/year (71%). African-American (13%) and Asian (3%) women also reported this symptom. The onset of ptyalism occurred during the first 4 to 8 weeks of pregnancy and usually ceased during the perinatal or postpartum period.

This study indicates that ptyalism may be more prevalent than initially estimated and that it occurs in women of varying education and economic status. A familial tendency to ptyalism was noted. Relief from ptyalism generally comes with delivery of the infant.

CHANGES IN NUTRITIONAL STATUS OF MEDICAL STUDENTS

M Brueggemann, L Scarpinato, C McGill (Milwaukee, WI)

Acceptance into medical school brings with it changes in lifestyle and increased responsibilities. An increase in stress can be associated with these changes. Due to increased workloads, medical students often have less time to prepare meals for themselves. As a result, they are sometimes forced to eat an increased number of readily available foods which may be less nutritive than home-cooked meals. A decrease in the nutritional value of their food can result in decreased nutrient density of the diet which can increase the medical student's risk of disease and other problems associated with poor nutrition status. This can have a particularly pronounced effect on medical students, since their new lifestyle also causes stress which can perpetuate these problems.

To study the changes in diet and nutrition status of first year medical students, successful applicants to the Medical College of Wisconsin will complete a food frequency questionnaire a month before the beginning of their first year of classes. These same participants will then complete another food frequency questionnaire a month after medical school classes begin. From these food frequency questionnaires changes in diet and nutrient density can be identified.

By studying the changes in diet of first year medical students, risk factors can be identified which could lead to the medical students developing problems which may hinder their ability to successfully complete their coursework. This increased awareness can be used to better educate members of these risk groups on how to manage their new lifestyles and increased workloads.

DECREASING THE AMOUNT OF INFLAMMATORY PAP RESULTS USING A SIMPLE INTERVENTION

W Dingel, L Marchand (Madison)

Background: The Papanicolaou smear is a screening test, by collection of ectocervical and endocervical cells, used to detect cervical cancer, infections, and cellular changes. Our goal was to determine if swabbing the cervix prior to ectocervical and endocervical cell collection decreased the number of inflammatory pap results, hence decreasing unnecessary patient visits, procedures, and anxiety.

Methods: Data were collected in this pilot retrospective study using the laboratory log book as well as chart reviews. Pap results for 1468 smears were obtained. In 560 cases, a Scopette was used each time to swab the cervix, and in 908 cases the cervix was swabbed only when excess cervical mucous was present prior to endocervical and ectocervical cell collection. The chi square test was used for statistical analysis. All Papanicolaou smears were collected by 6 faculty family practice physicians in the Belleville Clinic of the University of Wisconsin Department of Family Medicine. The smears were analyzed for irregularities, including inflammation, through Dane County Cytology.

Results: The rate of inflammatory pap results in the group which always swabbed the cervix prior to obtaining a cell collection was 4.65% (26/560), compared with 6.83% (62/908) inflammatory pap results in the group which only swabbed the cervix if mucous was present prior to cell collection. The results of the Chi Square test (X^2=2.935, df=1, p=0.087).

Conclusion: The results of the Papanicolaou smears were not statistically significant (p=0.087) when the cervix was always swabbed versus only swabbed when mucous was present prior to cell collection. This may be due to the variance of collection techniques used by the 6 physicians, or the swabbing of mucous on cervix when necessary.

"IT'S A HIT"

DM Sisler, A Montoto, HM Lopez

Purpose: The Mitchell Point Family Health Center recognized that it could play an active role within the Hispanic community by sponsoring and coaching a girls' Little League team. The focus of this quantitative study was to determine if, because of this experience, the players changed their thoughts or activities toward a more health-promoting lifestyle.

Methods: Clinic staff were involved in organizing the team, finding funding to support the team, coaching and mentoring team members. Pre-season and post-season surveys were completed by 15 players in their primary language. The variables measured were comfort level with player's personal physician, ease in seeking health care, thoughts of seeking a health career, diet preference, exercise level, potential for smoking or drug use or gang activity, self confidence and their relationship with their family. Statistical analysis was done using the Statistical Package for Social Sciences (SPSS). Analysis of variances was performed on pre- and post-season variables.

Results: Surveys showed no statistically significant differences in pre- and post-season behavior parameters.

Conclusions: The team record was 8 wins and 5 losses. Sponsoring a softball team is a fun form of community involvement. No resultant significant differences in "healthy" parameters were seen during this small pilot study because these self-selected participants may have already developed healthier attitudes or habits.

FAILURE TO DETECT *CHLAMYDIA PNEUMONIAE* IN SINUS TISSUES OF ASTHMA PATIENTS UNDERGOING SURGERY FOR CHRONIC SINUSITIS: PILOT RESULTS

JL Jansen, DL Hahn (Madison, WI), LA Campbell, F Boerries Jacques, C-C Kuo (Seattle, WA)

Background: Chronic sinusitis often accompanies asthma but the reason for this association is unknown. *Chlamydia pneumoniae* is an intracellular pathogen that is an important cause for respiratory illnesses that include acute sinusitis, and persistent *C. pneumoniae* infection has been associated with asthma. Therefore, we investigated whether *C. pneumoniae* was detectable in chronic sinusitis tissues from patients who also had asthma.

Methods: Evidence for *C. pneumoniae* was sought using genus-specific immunocytochemical (ICC) staining and species-specific polymerase chain reaction (PCR) testing of formalin-fixed, paraffin-embedded sinus tissues removed previously during surgery at a community hospital. All medical charts of patients with sinus tissue samples between mid-1991 and 1997 (N=360) were scanned for diagnoses of chronic sinusitis and/or asthma. A subset of 164 were reviewed in depth and categorized as chronic sinusitis with asthma (n=67), chronic sinusitis without asthma (n=67) or non-sinusitis (n=30).

Results: To date, adult patients with chronic sinusitis and asthma, who were also taking bronchodilator and/or anti-inflammatory therapy, have been tested (ICC: 16 samples in 10 patients; PCR: 9 samples in 4 patients). None of the samples has been positive for *C. pneumoniae.*

Conclusions: These negative results in a small number of tissue samples argue against the possibility of a high prevalence of detectable persistent infection in patients with chronic sinusitis and asthma whose disease is severe enough to warrant surgery. These results do not rule out the possibility that *C. pneumoniae* infection is present earlier in the development of chronic sinusitis, nor do they address the possible presence of infection in other clinical categories of patients with chronic sinusitis.

THE PREVALENCE OF HEART FAILURE AMONG A POPULATION OF OLDER ADULTS IN THE U.K.

H Smith (Southampton, United Kingdom)

Background: Previous estimates of heart failure have been limited to relatively young subjects or used a definition based on clinical criteria. To assess the prevalence of heart failure among older adults, we performed a cross-sectional survey of men and women aged 70 to 84 in which left ventricular systolic function was assessed by echocardiography.

Methods: A random sample of 1200 individuals was identified from the patient list of a large, 4-centre group practice in Poole, Southern England. Of the 1056 eligible patients, 817 (77.4%) had an echocardiographic assessment of left ventricular systolic function including measurement of ejection fraction where possible.

Findings: The overall prevalence of left ventricular systolic dysfunction was 7.5% (95% CI 5.8-9.5); mild dysfunction (5.0%) was considerably more prevalent than moderate (1.6%) or severe dysfunction (0.7%). At all ages, the prevalence was much higher in men than women (OR 5.1, 95% CI 2.6-10.1). In approximately half the patients with ventricular dysfunction (52%, 36/61) the diagnosis of heart failure was previously unknown.

Interpretation: Heart failure is a common, often unrecognized problem in older patients in general practice. Evidence from clinical trials suggests that appropriate treatment with ACE inhibitors reduces morbidity, hospitalization and mortality in these patients. Determining the optimum method of identifying ventricular dysfunction in general practice, and assessing the cost effectiveness of community screening, are high research priorities.

HOW RELIABLE IS THE DIAGNOSIS OF DEPRESSION MADE BY THE GENERAL PRACTITIONER?

EM van Weel-Baumgarten (Nijmegen, The Netherlands)

Background: Studies about depression show a wide variety in outcome depending, among other reasons, on whether the patients in these studies are from general practice or psychiatry. How the accordance of the diagnosis made in general practice is with a diagnosis of depression made with the criteria of the DSM-IV is not quite clear.

Methods: Thirty-three patients belonging to the practices of the Continuous Morbidity Registry (CMR) of the University of Nijmegen The Netherlands codes for depression (ICHPPC-2) were interviewed with the 12-month computerized version of the Composite Interna-

tional Diagnostic Interview (CIDI). Validity of the general practice diagnosis was tested and the percentage of accordance with the CIDI diagnosis of Major Depressive Disorder (MDD) (DSM-IV criteria) was calculated. To study missed depression 2 matched control groups were also interviewed, one without any code for a mental disorder and the other with a code for Chronic Nervous Functional Complaints (CNFC).

Results: Of the 33 patients with a code for depression, 26 matched the DSM-IV criteria for MDD and another 2 patients for dysthymia. No cases of DMS-IV MDD were found in the control group without a code for a mental disorder and 7 (of 33) in the control group with the CNFC.

Conclusion: The specificity of the general practice diagnosis of depression and the accordance with CIDI diagnosis of MDD are high. The sensitivity of the general diagnosis still needs careful attention. Future studies should focus on characteristics (of patients as well as of the depression) which identify those cases that need "detection and labeling," care and treatment.

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The Changing Face of Emergency Medicine in Wisconsin

By Ruth M. Heitz, JD, SMS Associate General Counsel

Physicians in Wisconsin have developed various practice arrangements to meet patient care demands and to successfully compete in a changing health care market. Some physicians are starting solo practices in underserved areas while other physicians are closing solo practice offices to work in multispecialty clinics and hospitals.

As physicians search for different and creative ways to structure their practices, there is increasing interest in the formation of urgent care centers and freestanding emergency rooms. Urgent care centers are very common throughout Wisconsin, and although physicians have recently expressed interest in developing more urgent care centers, this article focuses on freestanding emergency rooms, which have been the subject of many recent inquiries.

The first freestanding emergency room was the Newark Emergency Center, Inc. in Delaware, established in 1973. The number of such centers increased dramatically across the United States in the late 1970s and 1980s.[i]

In their early development, freestanding emergency centers were generally regarded as any facility separate from a hospital that offered extended hours and walk-in emergency care. Some developed on the model of providing emergency care similar to the care a patient would receive in a hospital-based emergency room. Emergency centers that follow the hospital emergency room model have the staffing and equipment to provide full emergency care and receive patients by ambulance.

Freestanding emergency rooms based on the hospital model are probably the most difficult to develop and sustain. They are costly because they require the acquisition of specialized equipment to handle any type of emergency, 24-hour staffing, and the procurement of accounting, auditing and management skills.

The American Medical Association (AMA) has expressed concern that facilities using the term "emergency" in the title or description of the medical practice maintain specific emergency capabilities so that critical emergency service is not delayed. The AMA also believes that an emergency center that lacks access to immediate hospital resources might delay definitive care of critical emergencies.[ii]

A true emergency center must be able to stabilize patients who have an emergency medical condition. The Emergency Medical Treatment and Labor Act (EMTALA), sometimes referred to as the anti-dumping act, essentially requires that an emergency department or facility screen patients and stabilize them before transferring to a different facility, except in very limited circumstances. Many freestanding emergency centers that lacked the resources, equipment or personnel to fully comply with EMTALA changed their name, patient care focus and marketing strategies to become freestanding ambulatory care centers. Not only has EMTALA played a major role in redefining freestanding emergency centers, but regulation by state agencies was also a factor in the shift from "true" freestanding emergency centers to freestanding ambulatory care centers. Some states were reluctant to license freestanding emergency centers, while others wanted to impose extensive regulations.

The AMA takes the position that self-regulation is preferable to mandatory state regulation as a method of ensuring quality of care in freestanding emergency centers.[iii] Self-regulation has generally taken the form of accreditation by a health care organization. Accreditation assures that a facility has adopted appropriate policies and procedures and has the equipment necessary to provide high quality health care to patients.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) publishes standards for hospitals, which affect hospital-based emergency departments. The standards pertaining to emergency services are not contained in a separate, easy-to-find section, but rather are interspersed throughout the publication. JCAHO also publishes separate standards for ambulatory care facilities.[iv] In addition to JCAHO accreditation, a freestanding facility can seek accreditation from the Accreditation Association for Ambulatory Health Care, Inc.[v]

In Wisconsin, the Department

of Health and Family Services (DHFS) regulates hospitals. Because the agency regulates hospital-based emergency services, DHFS suggests that it also has a role in regulating freestanding emergency centers as well. Others argue that licensure by DHFS is not necessary. But DHFS apparently has not licensed any freestanding emergency centers to date. According to a DHFS representative, the agency does not license such centers because they are prohibited by the Wisconsin Administrative Code, section HFS 124.24(2)(b)3, which states: "The location of the emergency service shall be in close proximity to an exterior entrance of the hospital." However, a critical review of this language suggests that its drafters never meant to exclude the licensing of freestanding emergency centers. Rather, they wanted to ensure that hospital emergency departments are appropriately placed to receive emergency patients delivered by ambulance.

Moreover, the Wisconsin Administrative Code chapter HFS 124 applies to hospitals. If a freestanding emergency center does not meet the definition of a hospital, then arguably HFS 124.24(2)(b)3 is inapplicable. Generally, statutes and administrative code provisions that prohibit conduct are written in more direct language, such as "DHFS shall not license a freestanding emergency center." Neither the statutes nor the administrative code currently contain such a direct prohibition.

It seems clear that development of a freestanding emergency center in Wisconsin would encounter regulatory hurdles. Therefore, physicians interested in developing a center based on the hospital emergency department model should be prepared to consider whether developing an ambulatory care center is more feasible. Freestanding ambulatory care centers generally do not accept critically ill patients, or patients delivered by ambulance. Rather, they resemble urgent care centers, providing extended hours of service and care for walk-in patients with minor or urgent problems. Some freestanding ambulatory centers provide primary care as well.

Physicians who develop any freestanding center must adequately capitalize the venture. They must have enough money to build, staff, equip and run the facility. Some physicians have entered into joint ventures with existing hospitals as a means of sharing costs and obtaining the benefit of the hospitals' management, auditing and other skills.

Cost is just one consideration though, there are many others. Facility developers must engage in market research to determine an appropriate site. They must ask whether the proposed area is currently underserved. Will the center compete with existing hospitals, urgent care centers, clinics and private medical practices in the community? Are there patient needs that other providers are not satisfying? Is the facility accessible to the public?

Staffing is another major concern. How will the facility recruit talented, trained professionals to provide patient care? How will the adequate staffing levels be maintained throughout the facility's extended hours? How will physicians and other professionals be compensated? What medical specialties will be represented (i.e. emergency medicine, general practice, internal medicine, pediatrics, etc.)?

Successful marketing of a new facility is almost as important as finding the right site. How will the facility be advertised? In some states, freestanding emergency centers are advertised as a lower cost alternative to other health care providers, offering shorter waiting times and access to care during evenings and on weekends to accommodate patients who work during normal business hours.

Finally, one of the most important considerations is whether the proposed facility will adequately meet patients' needs. The American College of Emergency Physicians (ACEP) has developed emergency care guidelines for hospital-based emergency departments. However, the guidelines might be very helpful to physicians contemplating the development of a freestanding emergency center. ACEP's guidelines discuss professional responsibilities, administration, staffing, equipment and supplies, and many other relevant subjects.[vi]

This article does not take a position regarding whether the development of a freestanding emergency center is good or bad. However, physicians should determine whether developing such a facility is appropriate by carefully weighing all relevant considerations. Wisconsin has a very distinguished reputation for providing high quality health care. Physicians across the state work diligently to provide outstanding patient care, often making personal sacrifices and receiving inadequate remuneration. If freestanding emergency centers become a part of the Wisconsin health care landscape, then the developers of those facilities should ensure that they continue these high standards.

Appendix

i. *Ambulatory Systems Development – Ambulatory Surgery: Critical Managment Indicators*, an article by Robert and Joseph Zasa about development of urgent care centers, is available on the internet at www.asdconsulting.com/article3.html
ii. AMA Policy H-130.990, Freestanding Emergency Medical Care.
iii. AMA Policy H-160.983, Satellite and Commercial Medical Clinics.
iv. Information regarding JCAHO accreditation may be obtained on the internet at www.jcaho.org or by calling JCAHO at 630-792-5000.
v. Accrediation information may be obtained from AAHC's website at www.aaahc.org or by calling 847-676-9610.
vi. ACEP Emergency Care Guidelines may be found at www.acep.org/POLICY/PO400057.htm

Nurse Adoption Campaign Promotes Mammography

By Jay A. Gold, MD, JD, MPH, Elaine Kloepfel, RN, MA, CPHQ, and Dennis Spurlin

Since breast cancer is the most frequently diagnosed cancer in women, breast cancer screening and mammography are one of the key subjects of MetaStar's health care quality improvement projects. The recently-completed National Breast Cancer Awareness Month offered yet another opportunity to reach MetaStar's prime audience: Wisconsin Medicare beneficiaries. In a joint effort with the Wisconsin Division of the American Cancer Society (ACS) and the Wisconsin Council Pink Ribbon Steering Committee, MetaStar launched a campaign in August with a theme of "One to One Gets Mammograms Done." The intent was to recruit nurses, have them find "adoptees" and make appointments for mammograms during National Breast Cancer Awareness month.

The premise was simple: each nurse (RN, LPN) in the state was asked to participate by adopting a woman known to her/him who was over age 50 and had not had a mammogram within the past two years. The "adoption" involved education and encouragement to convince individuals to get a mammogram, as well as making the appointment and providing transportation as necessary.

Nurses were chosen for this project for a variety of reasons: they could remove many barriers through their patient education experience; they had knowledge regarding use of the health care system; their experience included promoting lifestyle changes; and they had an understanding of cultural issues. In addition, the project offered nurses an opportunity to be more active in their communities.

Recruitment/promotion was done in several ways. The idea was first introduced to the Wisconsin Organization of Nurse Executives, which includes nurse managers from all settings. MetaStar also contacted associations whose membership employs nurses, such as the Wisconsin Health and Hospital Association, the Wisconsin HomeCare Association and long-term care organizations. MetaStar then contacted the Wisconsin Nursing Coalition, the umbrella organization for more than 20 nurse organizations. All organizations were supportive and agreed to encourage their members through newsletters and distributing sign-up information.

The sign-up information included a cover letter and an enrollment form. The packet also included a letter from Wisconsin's First Lady, Sue Ann Thompson (herself a breast cancer survivor). After the enrollment forms were returned to MetaStar, each participant received an information packet designed by MetaStar, ACS and the Wisconsin Council Pink Ribbon Steering Committee. The packet included breast cancer facts, mammogram information, answers to frequently asked questions and myths about breast cancer, pink ribbon pins, flu and pneumococcal vaccine information (since it is the season) and postcards to be returned to MetaStar once a mammogram has been scheduled.

Studies have clearly shown that annual or biannual screening mammography in women over age 50 can identify breast cancer in its earlier, more curable, stages and can thereby reduce mortality by about 30 percent. In 1996, approximately 41 percent of Wisconsin women over 50 had not had a mammogram in the previous two years. In the same year, there were 3,887 cases of breast cancer diagnosed and 815 deaths from breast cancer.

This project is aimed at increasing mammograms among women who do not regularly receive the screening by employing a one-to-one intervention. There are 435,000 Wisconsin women enrolled in Medicare Part B, and an estimated 770,000 women over age 50. Further, there are more than 70,000 licensed nurses in Wisconsin.

While still in its infancy, the "One to One Gets Mammograms Done" campaign has the potential

Authors are associated with MetaStar. Doctor Gold is Senior Vice President and Principal Clinical Coordinator, Ms. Kloepfel is Senior Project Coordinator, and Mr. Spurlin is Communications Specialist. Reprint requests to Jay A. Gold, MD, JD, MPH, MetaStar, 2909 Landmark Place, Madison, WI 53713.

to make a substantial impact on mammography rates. Approximately 750 kits have been distributed thus far by MetaStar. Final responses and new requests for kits continue to be processed.

Over the next few years, MetaStar will be undertaking additional projects to bring mammography rates in line with recommendations. Future partnerships will include the Wisconsin Breast Cancer Coalition, the Well Women of Wisconsin organization, the ACS and the Pink Ribbon Steering Committee. For some of these projects, we will be inviting Wisconsin physicians to work with us to raise rates. Stay tuned.

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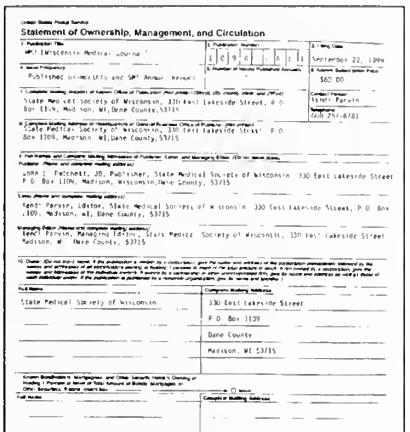

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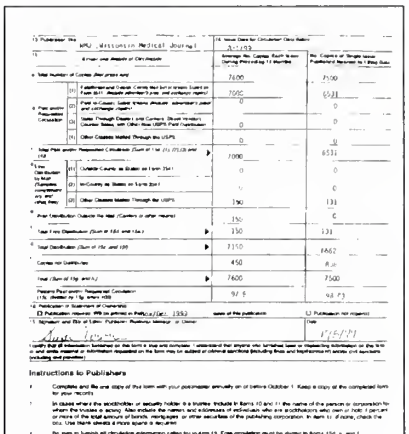

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Classified Ads

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WMJ

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Editorial

As '99 Ends, We Launch a New Feature and Swallow Some Crow

by Thomas C. Meyer, MD, WMJ *Medical Editor*

Some crow to eat, a pleasing circumstance, some heavy science and a new feature column are the topics of this month's thoughts.

The crow — You may recall Marc Kennedy's article in the September/October issue of *WMJ* relating to IDET (Intradiscal Electrothermal Annuloplasty) as a substitute for spinal fusion. It led me and others to believe that the procedure was introduced in Wisconsin by the Marshfield group, and that Marshfield is the only center offering this option. NOT TRUE! Doctor Klessig's letter (p 4) and others let us know in no uncertain terms that we were in error. Doctor Bryce agreed. We apologize and hope to do better in the future. Other centers offering the procedure are invited to send us their experience, good or bad.

The pleasing circumstance — The plan was to devote this issue of *WMJ* to osteoporosis. However, it seemed reasonable to expand the theme to "Women's Health," and the issue is better for it. We are honored and flattered to have a guest editorial (p 13) by Wisconsin First Lady Sue Ann Thompson, who succinctly lays out the proposed initiatives of the Wisconsin Women's Health Foundation. Doctor Carnes' fiery guest editorial (p 15) and sidebar outlining the structure and functions of the UW Center of Excellence in Women's Health follow. While we may not agree with parts of Dr. Carnes' editorial, she does make one think that perhaps the long-standing concern about subjecting women, especially in the child-bearing years, to various and sundry drug research protocols was carried further than was reasonable. I can't help feeling that with the leadership of these two strong women, there will be significant improvement in the understanding, management and distribution of care for Wisconsin women.

While not related to women's health, Dr. Poland's question about who manages care is being published in the hope that more managed care organizations formally withdraw their costly physician oversight procedures (p 10).

It is reassuring to see that data from a limited sample in one Wisconsin hospital does not seem to indicate any significant gender differences in the management of women and men with AMI (p 30).

Shrager et al point out that the "sensitivity index" in assessing the risk of osteoporosis in postmenopausal women leaves much to be desired (p 34). It would be helpful if they could suggest some ways in which we might remedy our deficits in this regard.

Ms. Russell and her colleagues show evidence of an increasing disparity in breast cancer mortality between black and white women, nationally and in Wisconsin (p 37), and challenge others to elucidate the problem though one hopes they will "stick with it." Doctor Mahoney (p 40) introduces the interesting concept that gender differences in "hallway ambulation" in the elderly after serious illness contribute to later difficulties, which may be more marked in women. One can quibble about the methods, for it surely was an excruciating study to undertake, but we salute her for doing it at all and pointing out that there may be a relationship.

The article from the UW Medical School Department of Preventive Medicine (p 44) provides interesting data showing a steady decline in the mortality rates among men and women in Wisconsin over the last 20 years. When viewed by age group, there are puzzling differences, and the authors provide some insights into possible reasons.

The heavy science — Hyperhomocysteinemia as a cardiovascular risk factor — Fanapour et al (p 51). One is not surprised to see Dr. Kochar as one of the authors! While our heads may spin with the metabolic pathways throughout the article, there are down-to-earth suggestions relating to possible measures which might be taken in the management of these patients.

The new feature – We have prevailed upon the Deans of the two medical schools to contribute a "Dean's Corner" to each issue of *WMJ*. It seems reasonable that we take advantage of this opportunity to find out what is going on in medical education, research and service in Milwaukee and Madison, and throughout the state. Dean Farrell is in the corner this month, (p 59) and we hope Dean Dunn will occupy it next time. We hope over time readers will become sufficiently familiar with the schools' activities to be moved to provide thoughts and suggestions for their further improvement.

We wish you all the compliments of the season.

WMJ

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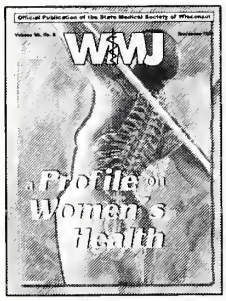

COVER THEME WOMEN'S HEALTH

Osteoporosis affects more than 25 million Americans, 80% of them women. As baby boomers retire, those numbers will surely climb. In this issue of WMJ, *we examine osteoporosis treatment and patient education in addition to other vital women's health issues and some of the groups working to make a difference in Wisconsin.*

Cover design by Kendi Parvin, *WMJ* Managing Editor

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In Response to MetaStar's Comment

In our manuscript entitled, "Medicare's Cooperative Cardiovascular Project: Can We Trust Our MetaStar Report Cards?" (*WMJ* 1999;98:44-48), we pointed out serious errors in the data collected by MetaStar in Phase II of the Cooperative Cardiovascular Project (CCP). This caused them to reach erroneous conclusions regarding the care rendered to patients admitted to our hospital with acute myocardial infarction. We agreed to have MetaStar respond to our manuscript in the same issue so the reader could view this response in the immediate context of the manuscript. Just as the authors and most of Wisconsin's physicians strive to render the best possible patient care, we also desire Wisconsin to have the best Peer Review Organization (PRO). We believe our manuscript demonstrates the need for improvement of our PRO and we are pleased that Jay Gold, MD, MetaStar's senior vice president, has pledged that MetaStar will do better in the future. We believe MetaStar will find Wisconsin's physicians willing to assist them in achieving this goal.

We were, however, disappointed with Dr. Gold's overall response. His repeated tendency to blame their flawed data on the "the errors in data collection by the Wausau abstractors" and to question why we don't "simply (and legitimately) call for better abstractor training" makes us question whether he appreciates the depth of the problem. Although the defensive nature of this stance is evident, we believe MetaStar will miss the opportunity for serious improvement unless more probing questions are asked. A few of these questions are: 1) Why did the PRO management rely on medically untrained abstractors to decide whether a patient should be classified as an "ideal candidate" for reperfusion therapy? 2) Who was responsible for the CCP II data abstract form being so poorly designed that the abstractors found it nearly impossible to recognize accepted exclusion criteria? 3) Why didn't the management of our PRC7 check the accuracy of the abstractors on the actual patients used to generate the phase 11 data? 4) Why was the data presented to the health care providers of our state without first being validated? Although one could easily come up with several additional probing questions, the point is simply that the level of concern goes well beyond the "Wausau abstractors."

Our study did not allow us to determine how widespread the abstractor errors were in our state. Although we asked MetaStar for a list of other participating hospitals so that we might contact them, we were told this was confidential information. Thus we cannot be certain that "the errors in data collection by the Wausau abstractors" were unique to our facility. If they were, then perhaps MetaStar's aggregate data in table 1 of our manuscript is correct. However, this would lead to the unsettling conclusion that the majority of Wisconsin participating hospitals are mismanaging acute myocardial infarction. Our manuscript offers a possible (and we believe more probable) alternative explanation of this. We would be interested in the views of the other participating hospitals.

In our paper we raise the possibility that flawed data could have implications beyond that of patient care. This was highlighted by an article in Internal Medicine News stating "HCFA is giving serious consideration to making Medicare reimbursement contingent upon adherence to the CCP quality assurance standards for acute MI."[1] We are pleased that Dr. Gold can assure us that the Health Care Financing Administration is not discussing such issues.

Although we learned much from this endeavor, MetaStar's "help" did cause us to divert 3 months of precious quality improvement time to a patient care problem that did not exist. We are nevertheless, better for the effort and we believe ultimately our PRO will be better too. We accept MetaStar's offer to assist us in future quality improvement initiatives and likewise offer our assistance to them in building a better PRO.

David K. Murdock, MD, for the Cardiovascular Care Committee of Community Health Care/ Wausau Hospital

References

1. Jancin B. Physician report cards for MI care deemed unreliable. *Internal Medicine News* 1999 March 15;32:1&5.

IDET Article: Criticism and Clarification

I recently read the article by Marc Kennedy entitled *IDET: A new approach to treating lower back pain* in your September/October 1999 issue.

Certainly I support the medical journal's attempt to identify new and innovative treatments as they arise, but I take exception to the article as written as this seems to simply serve as a marketing tool for the practice of Dr. David Bryce. Specifically, Dr. Bryce was certainly not the first physician in Wisconsin to use the IDET procedure. I believe this distinction belongs to Dr. Vijay Singh, who is a member of the pilot study done on the procedure when it was first

developed by Drs. Jeffrey and Joel Saal at UCLA.

Secondly, the article's *"IDET Resources"* box, leads one to believe that Dr. Bryce is the only physician in Wisconsin performing the procedure, as the only other resources listed are in Maine and California. I believe there are several centers performing IDET in Wisconsin and this was certainly not apparent from your article. Thirdly, at this time no peer-reviewed article in *Spine* has been published regarding the IDET procedure by the Saal physicians, though I believe this may be in press and may be coming out in the next six months.

I would recommend that greater attention to accuracy be paid by your authors in the future and that perhaps several physicians be interviewed when you wish to highlight a new or innovative procedure.

Heidi T. Klessig, MD
Pain Clinic of Northwestern Wisconsin

• • •

Thank you for publishing the article on minimally invasive surgery that appeared in the *Wisconsin Medical Journal* September/October 1999, volume 98, #6, page 18-20 (*IDET: A new approach to treating lower back pain*). It is a good article focusing on an important new service.

I need to clarify two issues. First, Dr. Larry Hutchins and I are among the first in the state of Wisconsin to perform this procedure, but we are not the first as noted in the article. Second, I did not have an opportunity to present my findings at the North American Spine Society in October, as suggested in the end of the article. We are working on an article regarding our experience at this time.

David A. Bryce, MD
Department of Anesthesiology, Interventional Pain Management Clinic, Marshfield Clinic

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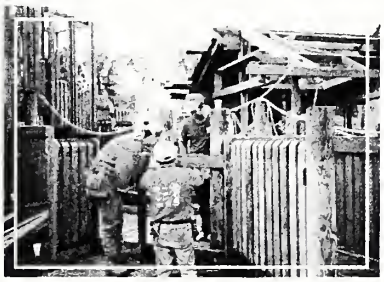

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Rockin' Doc Leads Appleton Boy Scouts

by Steve Busalacchi, Director, News & Information

If there's anything that you want,
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With love from me to you.
–Beatles

Appleton's **Jan Bax, MD**, PhD, has done more than sing these words. He has lived them, too. That's why the guitarist-turned-surgeon received the State Medical Society (SMS) of Wisconsin's Physician Citizen of the Year Award.

In the early 1960s, young Bax played bass guitar in a rock 'n roll band, just as the Beatles took the nation by storm. Catching the wave, his band quickly changed its name to Beatles II and played nothing but Beatles music. Bax played bass guitar and sang the lead for Paul McCartney songs.

Although he earns his living as a surgeon, Bax still cherishes that time when he was a Beatle (II). For proof, check out his medical office, which is adorned with Beatles memorabilia. And if you happen to find yourself in his operating room, don't be too surprised if you hear the Fab Four coming through the speakers.

Doctor Bax's passion for the Beatles is only exceeded by his commitment to Appleton in general and the Boys Scouts in particular.

"It's one of the very few proactive organizations in this country to help mold well-rounded citizens out of the young male members of our society," says Dr. Bax, who is not shy about promoting the Boy Scouts.

"If he's taking calls and it's Saturday, he'll come to the ER in his Boy Scout uniform," said SMS member Michael SanDretto, MD, of Neenah, who nominated Dr. Bax for the award. Doctor SanDretto wasn't so sure whether his SMS colleague would want everybody to know this, but Dr. Bax didn't hesitate to admit that it's true.

"I am very active with the Scouts, and when I'm on call during a Boy Scout function, I'll just go to the emergency room in my uniform," Dr. Bax explains.

Doctor Bax's involvement with scouting goes back "thirty-six and a half years," when he himself was a Boy Scout. Young Bax achieved the highest rank in Scouting when he became an Eagle Scout, a performance-based achievement only 2.5% of Scouts reach. Doctor Bax shares that distinction with film director Steven Spielberg, President Gerald Ford and astronaut James Lovell, Jr.

For the past two decades, Bax has been an adult scout leader, served as chair of the National Eagle Scout Association-Bay Lakes Boy Scout Council, member of the executive board of the Boy Scouts and Scout Master of Boy Scout Troop 106. In appreciation, Dr. Bax received scouting's highest award for meritorious service, the Silver Beaver.

"I'm just trying to put back into scouting what they gave me. I get involved because I enjoy it. I enjoy giving of myself, my time, my effort," says Dr. Bax. He feels it's essential that physicians give back to the community in whatever way is meaningful to them.

His community service record also includes being a volunteer hand surgeon for Desert Storm, President of the Wilderness Conservation Club and founding member and board member of the Children's Museum in Appleton.

"(Doctor Bax's) commitment to public service and especially to children, is extraordinary," said SMS president-elect Ayaz Samadani, MD, during the award presentation.

Doctor Bax's commitment also extends to his profession, having served as president of the Outagamie County Medical Society and a Board member for the American Foundation for Surgery of the Hand. His professionalism is renown, having been named one of the top 10 physicians in Northeastern Wisconsin by Fox Cities Magazine. And that professionalism is what led to his nomination for the Physician Citizen of the Year Award.

Doctor SanDretto was initially impressed with Bax's willingness and skill in helping to manage medical staff affairs. But he later realized that Dr. Bax's skills were "representative of his whole life—it wasn't just medical staff things."

When Dr. Bax is not involved in a scouting activity or other community work, he continues to indulge his other passion: music. And although he doesn't play the bass guitar as much as he used to, the busy doctor says he has not lost his touch.

"I can still play almost every Beatles song they ever wrote."

Welcome New Members

The individuals listed below were recently elected to SMS membership by their County Medical Societies. We are pleased to welcome them to the SMS.

Brown
Patricia J. Cantagallo, MD
Sherol L. Clarke, MD

Chippewa
Deborah Tierney Bieging, MD
Ricardo S. Obcena, MD
Laurie L. Peterson, MD
Kathryn Klimovitz Schaus, MD

Crawford
Timothy J. Devitt, MD

Dane
Candye R. Andrus, MD
William D. Aughenbaugh, MD
Yolanda T. Becker, MD
Mary L. Carnes, MD
Kevin J. Carrigan, MD
Michael J. Foley, MD
Mara Grbic (S)
Pankaj Gupta, MD
Bermans J. Iskandar, MD
Tanya M. Kausch (S)
Helen Kay, MD
Matthew D. Klein, MD
Jonas Jooyyoung Lee, MD
Amy E. Lemkuil (S)
David W. Mai, MD
Christopher M. Mjaanes (S)
Cynthia S. Pickney, DO
Kevin J. Reichmuth, MD
Gregory M. Rice (S)
Mark Bipin Shah (S)
John M. Snider, MD
Patricia A. Y. Tellez-Giron, MD
Gina A. Utrie (S)
John E. Zeinemann, MD

Door-Kewaunee
Rajesh M. Trivedi, MD

Eau Claire-Dunn-Pepin
Kenneth P. Adler, MD
Greg A. Burnett, MD
Mary K. Frohnauer, MD
Philip E. Jacoby, MD
J. Eric Perrerl, MD

Grant
Gert Hasselhof, MD
Paul C. Mariskanish, MD

Juneau
Timothy E. Napier, MD

Lafayette
Ann Marie Lucas, MD

Marathon
Linda Rae Fillipi, MD

Marinette-Florence
Denise L. Steiner, DO

Milwaukee
Deborah S. Baker (S)
Rajvinder Singh Bindra, MD
Robyn L. Breitzman (S)
Sean F. Buckley, MD
Cheryl M. Cameron (S)
Eric D. Challgren, MD
Lorree L. Dyoco, MD
Scott A. Eliason (S)
Leslie M. Gimenez, MD
Dena Ann Green, MD
Kanan Gutgutia, MD
Richard M. Hayes, MD
Rebecca L. Keim (S)
Monica L. McDonald, MD
Pamela M. Pletcher, MD
Kelly S. Ramsey (S)
Carolyn J. Rutter (S)
Jeffrey L. Shere (S)
Kathryn L. Sipiorski (S)
James M. Summers, DO
Amy M. Tamburrino (S)
John A. Weigelt, MD

Oneida-Vilas
Steven R. Brown, MD
Arvind A. D'Cruz, MD
Burt A. Stanga, MD

Outagamie
John T. Topp, DO

Ozaukee
Kirt Walker, MD

Racine
Mathew F. Connolly, MD
Giana L. Nicoara-Kasti, MD

Walworth
Myint T. Singh, MD

Washington
Michelle D. Fleischmann, MD

Waukesha
Remedios L. Almirante, MD
Richard E. Bivin, MD
Joel I. Lans, MD

Wood
Jeffery S. Dzieczkowski, MD
Deborah Gott Keenum, MD
Mohammad N. Khan, MD
Eileen S. Yale, MD
Steven H. Yale, MD

(S) designates medical student membership

Who's in the News

Marshfield Clinic-Wausau Center Physical Medicine Specialist **Swati Biswas, MD**, has received the Earl C. Elkins Award, presented to her by the American Board of Physical Medicine and Rehabilitation. Doctor Biswas earned the award because she achieved the highest score on the written certification examination of the Board.

John Meurer, MD, Chair of the SMS Pediatric Asthma Study Group and Assistant Professor of Pediatrics and Health Policy in the Center for the Advancement of Urban Children at the Medical College of Wisconsin and Children's Hospital of Wisconsin, received the "Most Useful Research Award" from the Wisconsin Network for Health Policy Research at its Second Wisconsin Health Services Research Conference. Doctor Meurer received the award for his research in universal newborn hearing screening.

The following physicians received the 1999 Service Recognition Award from Dean Health Systems: 35 years of service to **Fredrick Bronson, MD**, at Portage Clinic and **Gordon Kronquist, MD**, at Riverview Clinic; 30 years of service to **Harry Roth, MD**, at Davis Duehr Clinic; and 25 years of service to **Corazon Arellano, MD** and **Eduardo Arellano, MD**, both at Waupun Clinic, **Richard Armstrong, MD** and **John Bertram, MD**, both at East Madison Clinic, **Robert Graebner, MD** and **James VanderMeer, MD**, both at Dean Clinic and **Bruce Nagle, MD**, at Riverview Clinic.

In Remembrance

Marks, Jerome L., MD, 84, of Las Vegas, passed away October 11, 1999. He earned his medical degree from Marquette University Medical School and completed his radiology residency at Beth Israel Hospital in New York City.

Doctor Marks served as a major in the US Army Medical Corps during World War II and served at military hospitals in the United States and Panama. After the war he set up his practice in Milwaukee. He was a member of the 1989 SMS 50 Year Club.

Doctor Marks is survived by his wife, Natalie; two daughters, Brynn Bloch of Fox Point; Debra Parelskin of Orinda, CA; two stepchildren, Terry Tannenbaum and Jodi Siewert, both of California.

McCormick, Raymond A., MD, 78, of Hobart, passed away September 24, 1999. He served in World War II as a member of the 8th Air Force and received numerous medals and commendations, including the Purple Heart. After returning home, he earned his medical degree from Marquette University, and completed his internship at St. Mary's Hospital, Milwaukee. He moved to Green Bay in 1959 and began working at St. Vincent Hospital as a pathologist and subsequently served as Chief of Pathology. After 27 years of service, he retired in 1985.

Doctor McCormick was one of the original founders of Montessori School in Green Bay, and he participated in the establishment of the Med-Tech internship at St. Vincent Hospital. He served as President of Brown County Medical Society in 1980, was a member of Badger Regional Blood Center Advisory Council in Madison, was Medical Director at Lakeland Chapter-American Red Cross in Green Bay, and was on the editorial board of the *Wisconsin Medical Journal.*

Doctor McCormick is survived by his wife, Beverly; his children, Jay (Laura), of Appleton; Pat (Jayne), of Appleton; Vincent (Becky), of Green Bay; Mark (Corrine Featherston), of Madison; Eileen (Steve) Cobb, of Madison; and five grandchildren, Jessica and Ryan McCormick, Carolyn and Samantha Cobb, and Weston McCormick.

Miller, Thomas O., MD, 68, of Tomahawk, passed away September 24, 1999. He earned his medical degree from the University of Wisconsin Medical School, completed his internship at Detroit Receiving Hospital and his orthopedic residency at the University of Wisconsin.

Doctor Miller served in the US Air Force from 1956 to 1958. He practiced orthopedics in Wausau from 1964 until his retirement in 1996, and was the founder of the Bone and Joint Clinic of Wausau in 1969. He was a member of the American Board of Orthopedic Surgery and the AMA.

Doctor Miller is survived by his wife, Joan; his children, David (Mary), of Tomahawk; Kristen (Matthias) Weiss, of Minocqua; Nancy (Preston) Bastian, of Marshfield; Sarah (Bruce) Backer, of Appleton; and Dr. Kari (Curt) Sheldon, of Appleton; and 11 grandchildren.

Pelton, II, Russell S., MD, 82, of Neenah, passed away October 6, 1999. He received his medical degree from the University of Louisville and completed his internship at Receiving Hospital, Detroit, MI. He served during World War II as a physician and Lieutenant Commander in the Navy/Marines.

After the war, Dr. Pelton practiced medicine with Dr. Dow Cupery in Markesan from 1946 to 1954 and then moved to Ripon where he took over the practice of Dr. Kohl. Doctor Pelton served as chief of staff at Ripon Memorial Hospital, and president of the Fond du Lac County Medical Society.

Doctor Pelton is survived by his wife, Dorothy; his children, Marjorie Lewis, of Highland, MD; Ellen (Mark) Roemer, of Menasha; John (Janet), of Danville, CA; Russell, of Baltimore, MD; and Elisabeth Albrecht, of Columbia, MO; his grandchildren, Jennifer, Christopher, Jonathan, Amy, Jeremy, Paul, Zachary, Julie and Elise; great grandchildren, Jamie, Casey and Justin.

Sahs, Martin H., MD, 81, of Hayward, passed away October 2, 1999. He earned his medical degree from the University of Iowa and served his internship at Pennsylvania Hospital, Philadelphia and a psychiatry residency at Psychiatric Hospital, Iowa City, IA. He served in the US Army for 2 years. He started his medical practice in 1948 in Spooner. In 1955, he joined the Hayward Clinic from which he retired in 1987.

Doctor Sahs was an FAA aviation medical examiner, health officer to the city of Hayward, neurological consultant to the Social Security Disability Administration, and member of the SMS 1994 50 Year Club.

Doctor Sahs is survived by

his wife, Wilva; his children, Don (Tina), of San Antonio, TX; Doug (Deborah), of Southborough, MA; Marza, of Spooner; and seven grandchildren.

Weinshel, Leo R., MD, 86, of Whitefish Bay, passed away November 5, 1999. He earned his medical degree from Marquette University Medical School and completed both his internship and residency at Milwaukee County General Hospital. He completed 35 years of active and reserve military service, serving in the European theater of operations in World War II, and retiring from the US Army Reserve in 1973 with the rank of Brigadier General.

Doctor Weinshel served as clinical professor of surgery at Marquette and the Medical College of Wisconsin, chief of staff of the Milwaukee County General Hospital, and chair of the State of Wisconsin Committee on Trauma, American College of Surgeons. In 1963 his testimony before the Wisconsin State Senate was instrumental in forcing the passage of the "Good Samaritan Law" which protects doctors and nurses against malpractice suits when providing emergency roadside assistance. He was named the 1984 Physician Citizen of the Year, received the 1997 Physician Citizen Lifetime Achievement Award, and was a member of the 1987 SMS Fifty Year Club.

Doctor Weinshel is survived by his wife, Ruth; his children, Jean (Moses Strassfeld) Weinshel, of Jamaica Plain, MA; Judy (Steven) Blumenthal, of Northbrook, IL and Joe, of Milwaukee; and his grandchildren, Carrie, Michael, David, and Jolyn.

AMA Awards

The SMS member physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations.

Thomas M. Duffy, MD
Robert R. Kuritz, MD
Gregory P. Kwasny, MD
Rolando A. Macasaet, MD
Paul E. Mannino, MD
Carol A. Martin, MD
Diane J. Meyer, MD
F. Bradford Meyers, MD
Quentin F. Rose, MD
Paul M. Rosenthal, MD
Thomas J. Saphner, MD
Masood Wasiullah, MD

You may be breaking a new state law and not even know it.
The Peltz Group can help.

WARNING

A new Wisconsin state law requires the shredding and disposal of *all* records containing personal information.

Is your business in compliance?
Can you risk facing thousands of dollars in fines and the anger of your customers?

A Wisconsin law that takes effect February 1 requires financial institutions, investment companies, **MEDICAL BUSINESSES** and tax preparation businesses to shred, erase or modify records containing personal information—or face heavy fines. The Peltz Group, Inc., one of the country's leading independent recycles, is ready to help you comply. We have shredders, facilities throughout Wisconsin and a $10 million liability insurance policy guaranteeing our service to you. We take out the questions and provide the answers. The Peltz Group is a reliable, safe and efficient recycler ready to supply you with quality, dependable shredding services.

For more information on how The Peltz Group can help you, contact one of our statewide offices at:

Milwaukee	Janesville	Madison	Paper Valley	Superior
(414) 967-1800	(608) 756-0001	(608-251-2115	(920) 729-5005	(715) 394-2174

THE PELTZ GROUP
www.peltzgroup.com

Guest Editorial

Who Manages Care?

by Maynard D. Poland, MD

Physicians have traditionally managed the care of ill patients, along with the expectations of patients and families. However, while most physicians have remained focused on diagnosing, treating, and preventing disease, in the last 15 years other stakeholders in health care have focused on ways to manage its delivery and finance. The results of their efforts – the development and growth of "managed care" –have consequently been alien to many physicians who consider themselves the managers of care. Thus, many physicians have reflexly resisted externally applied rules that they interpret as intruding on their authority and the traditional patient-physician relationship.

Can the conflict be resolved? Who should be in charge of the patient's care? Should that responsibility and authority include being in charge of managing the finance and system(s) of delivery of care, which control the demand and supply of care – "managed care" in the broader sense?

To maintain the perspective necessary to address these questions, it is important to understand that:

> "We are in the midst of building something new – of integrating the care management with the financial management and attempting to strike a balance where neither suffers, and the doctor-patient relationship prevails. This is an onerous task that calls upon physicians to demonstrate outstanding business and care management skills. It is also one that calls on administrators to seek to collaborate and not to control. And it is one that, in general, calls for an integration of talents to a degree that the health care industry has not seen in its rich history."[1]

The questions thus become:

1. Who should/can be in charge of patient care?
2. Who should/can be in charge of the "building of something new"?
3. What role can/will physicians have in building something new?

The answer to the first question seems straightforward: physicians and health care professionals are the only ones who can and should be in charge of direct patient care, not government or regulatory agencies, not insurers, not third party payers.

The answers to the second and third questions are unknown, but may be determined by those stakeholders who best comprehend the situation, who are the most organized and who expend the most effort. However, the diversity of perspective, opinion, and self-interest, and the complexity of the job suggests that collaboration is required. All legitimate stakeholders in health care must be involved: the medical professions and hospitals, the patients, the buyers and payers (employers & government), and the insurers.

Can anyone really be "in charge"? Can the effort be physician led, or will the profession at least be adequately represented, considering that physicians are generally not trained in the required business and management systems skills? Do physicians have, or will they take, time to understand the complex dynamics of the changes taking place, participate in the redesign, and accept the continual self-examination needed to be open to new systems and use of managed care "tools"[2]? Or will they mistakenly interpret what is happening as a monolithic threat, and resist without rational consideration? If physicians are reactive or passive, can they be adequately represented and/or have adequate influence? Or must they be proactive in developing better care management?

Perhaps the greatest challenge for physicians considering how to participate in health care redesign is understanding that the "Professional Sovereignty" and authority so unique to the first half of the 20th century[3] is no longer the pervasive public paradigm. It seems critical that physicians come to grips with that loss of sovereign authority to adapt to rapid change and adopt new methods, and also as a necessary first step to collaborative leadership. Some issues of control are important to protect, others may be more personal. If physicians are to lead health care

Doctor Poland is Medical Director - Utilization & Quality Management, Columbia-St. Mary's, Horizon Healthcare, Milwaukee. This article was first presented in the June, 1999 *Physician News* a publication for Columbia-St. Mary's Community Physicians. It has been slightly modified for *WMJ*.

reform or to have their interests adequately represented, they must think outside traditional "total" patient advocacy, including having a voice in how limited funds will be spent. Otherwise, physicians will be victims of reform and detrimental rules.

To understand what is happening in the redesign of health care, it is important for the individual physician to understand the following points.

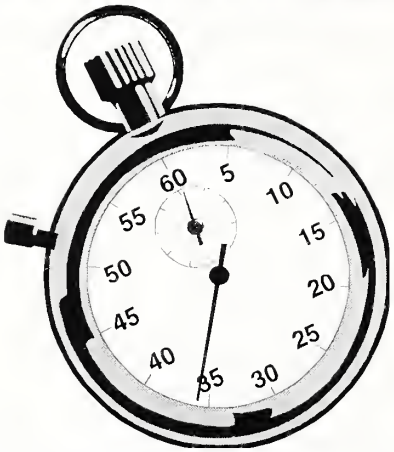
- The medical care industry is economically driven, and physicians are responsible for spending 80% to 90% of the health care dollar. Because those dollars are limited, physicians are being held accountable to more than just the patient. Decisions to test or treat without meeting medical necessity criteria potentially may deny payment for care to a patient with medically necessary needs.
- As fully as possible comprehend the legitimate viewpoints of the multiple stakeholders in health care, even if you don't agree with them.
- Understand the basic principles of managed care, and that the "tools" of managed care are meant to be a resource and support for physicians, patients, patients' families and other health care providers. Properly implemented, they should not be an intrusion, but a supplement and support. It may take some time and effort to get acquainted with them, but they will save time and make care more effective.
- There is a unique opportunity to deliver better care for less cost by reducing the immense variation which causes needless excess spending. Reductions of 20% to 40% in health care costs are possible without denying medically necessary care, *while improving both quality of care and patient & physician satisfaction!* That is the focus of properly-designed managed care, and it is physicians and their allied health care providers who should design this part of the new system. Practice guidelines and clinical pathways are two tools which physicians can design and use to reduce cost and improve quality.
- The bad name which managed care presently has is due largely to the misapplication of some managed care principles by certain insurers and payers, and their attempt to dictate to physicians (and to the public's lack of understanding of medical necessity). In reacting, physicians shouldn't throw the baby out with the bath water, but instead should understand the difference between the intent of the Wall Street-driven players in health care and what well organized provider groups and systems are trying to accomplish in providing better care for less cost, not the least of which is to improve physicians' reimbursement by supplying an improved "product." To paraphrase an old saying, it isn't that managed care isn't right and doesn't work, it's just that it either hasn't been tried, or often isn't properly used. Further, in matters of medical necessity and appropriateness, properly applied managed care need not violate the physician's ethical principles.
- Either lead, or support well-informed "big picture" leaders who will represent the profession in the best tradition of physician involvement in health care.

To summarize: There is a cascade of reasons flowing from basic economics which has caused government, insurers, and business and industry buyers and payers to demand both accountability for the cost of health care and preservation and improvement of quality.

Initially, many physicians and "organized medicine" as a whole were reactive to these forces rather than proactive. Physicians must either lead or be adequately represented in the unstoppable changes underway, recognizing the opportunity to design and provide better care at less cost and the consequent benefit to their patients, themselves, and society. To influence the redesign of health care, physicians must be prepared to examine and possibly give up some existing opinions and habits, and acquaint themselves with the problems in delivery and funding of medical care; they must learn the principles and use the tools of managed care, and selected leaders must acquire new skills in order to converse and plan with the other participants in the delivery of health care. How will physicians respond?

Appendix

1. American Medical Association: *Managing Managed Care in rhe Medical Practice - The Physician's Handbook for Success and Survival, p.* 3. Coker Publishing, LLC, 1996.
2. Those tools include hospital and office-based case management, disease management, pathways, guidelines, performance data feedback to physicians & providers, call center with triage function, urgent care, hospitalist program, etc.
3. *The Social Transformation of American Medicine* by Paul Starr, Basic Books, Inc., New York, 1982. Winner of the 1984 Pulitzer Prize for General Non-Fiction, this book is highly recommended.



It's time to nominate your favorite physician for

"THE PHYSICIAN CITIZEN of the YEAR AWARD"

The State Medical Society of Wisconsin is asking the people of Wisconsin to nominate physicians for this honor. The Physician Citizen of the Year Award was created to recognize physicians who volunteer their time and talents to help others through cultural, civic or charitable efforts and events. Please tell us about a physician you think is worthy of this award.

Here are the rules:

- The physician must be a Wisconsin resident.
- The physician must be either a MD or DO.
- Except in unusual circumstances, the service to the community should be uncompensated.
- Previous winners of the award are not eligible. (You will be notified if the doctor you nominate is a previous winner.)

Here are the rules:

Write to the State Medical Society and provide:

- The name of the physician.
- The physician's home or office address.
- Your name and address.
- Why you think the physician deserves to win. What has the physician done for the community?

Send your nomination to: State Medical Society of Wisconsin
ATTN: Terri Weaver
P.O. Box 1109
Madison, WI 53701
FAX (608) 283-5401 or e-mail terriw@smswi.org

For a nomination form, call: (800) 362-9080, ext. 240

The deadline for submitting nominations in January 14, 2000.

Sue Ann Thompson

Guest Editorial

Foundation Strives to Make Difference in Women's Health

by Sue Ann Thompson, President, Wisconsin Women's Health Foundation, Wisconsin's First Lady

I'm concerned about the future of women's health. Over the next 20 years, Wisconsin's aging population will include 215,000 more women between the ages of 45 and 64, and 155,000 women 65 and older. I'm concerned because women not only live longer than men, but we live with more chronic diseases and disabilities.

For example, women suffer osteoporosis 3 to 4 times more than men; depression 2 to 3 times more than men; and rheumatoid arthritis 4 to 5 times more than men. Young women now smoke at higher rates than men. In Wisconsin 32% of our young girls smoke. Scientists predict that women will eventually have a greater rate of lung cancer than men.

If we don't take strong steps to improve the health of women, there will be economic consequences as well as more and more unnecessary suffering. No one wants to watch their grandmother fail because of brittle bones or lose a loved one to breast cancer or chronic heart disease – especially when many of these unnatural losses can be prevented.

I truly believe that the issues surrounding women's health will, in many ways, be the way in which our society will be measured during the 21st century. For too long, women's health issues have lagged in the area of both research and practice. That is no longer acceptable.

My passionate commitment for women's health comes from my own experience as a breast cancer survivor. During that struggle, I discovered how essential it is that women understand health issues, become aware of the diseases that affect them, and take charge of their health and their lives. I vowed to reach out to other women with support, education, and awareness, and consequently established the Wisconsin Women's Health Foundation.

The Wisconsin Women's Health Foundation is committed to empowering women with information about their health, helping women make healthy choices for themselves and their families, and encouraging women to be strong advocates for their health.

We focus our efforts on diseases that have an enormous, devastating impact on the lives of women: heart disease, osteoporosis, mental health and depression, breast cancer, domestic violence and smoking.

The Foundation has taken on three primary goals:

- To increase the number of strong women leaders in medicine who are influential in focusing research and services on women's needs;
- To strengthen, develop and increase women's health research, and to establish a statistical profile of women's health in Wisconsin; and
- To provide education, prevention and community outreach in the areas of osteoporosis, mental health, heart disease, breast cancer, domestic violence and tobacco use.

We have pursued a number of initiatives in our first year of existence that speak to our mission.

First, we all know that the single most deadly threat to women's health is smoking. That's why we decided to help the women of Wisconsin kick the habit. In February, the Women's Health Foundation and the University of Wisconsin, Center for Tobacco Research and Intervention, helped distribute 19,000 health kits to women across the state. The kits contained a 6-week supply of nicotine patches along with useful information on the five areas of health concerns I mentioned earlier. This program made quitting more affordable and gave women an added incentive to take action. As many as 72% of participants altered their smoking behavior according to a post-program survey. Twenty-two percent of participants quit – that's almost 4000 Wisconsin women who no longer smoke. Another 50% reported a reduction in their smoking. We intend to continue our efforts to help women beat the addiction.

The second initiative I'd like to tell you about is the Wisconsin Women's Health Roundtable Discussions. The State Medical Society and the Foundation are working together to support women's health. We are sponsoring a series of urban and rural discussion group meetings with women around the state. At each session, a health professional presents information and then takes part in a lively exchange with the women who attend. We encourage women to ask questions and find out how they can get the services they need. One of the

goals of the discussions is to eliminate the barriers that exist between doctor and patient so it's easier for women to ask questions. We also want the women who attend the discussion to spread the word to family and friends. Our first session dealt with osteoporosis and was in a rural area of the state. After that we met in Milwaukee with Native American women, who often lack access to early detection and treatment services. The strength of the roundtable discussions emerged in this meeting as women asked questions, one-on-one and got answers to the unique problems they face. To date, Roundtable Discussions have been held in Kendall, Marshfield, Peshtigo, Platteville, Menasha, Menomonie and Tomahawk.

The Wisconsin Women's Health Foundation also offers grants to help fund new or existing research in women's health. Our first grant recipient is Dr. Jane Mahoney. Doctor Mahoney is an Assistant Professor, Department of Medicine, University of Wisconsin, and holds a position at the William S. Middleton Memorial Veterans Hospital in the Geriatric Research, Education and Clinical Center. Doctor Mahoney is exploring ways to reduce injury among the elderly who have undergone hospitalization. It is the first study to look at ambulation and gender differences. Her preliminary findings are reported in this journal on page 40.

Another initiative is the WWHF Lisa Cudahy Community Health Grant. By partnering with local, non-profit community organizations, the Foundation believes it can complement local activities to improve women's health. Examples of partnerships include sponsorship of the American Heart Association "Women of the World Heart Disease Conference," and Wisconsin Public Television's "Women's Health Fair."

As the next several months unfold, the Wisconsin Women's Health Foundation will realize another important goal. We have convened a panel of health care experts to collect women's health data and shape a statistical profile of the status of women's health in Wisconsin. The results of the study will be announced early next year and are intended to serve as a benchmark and resource for legislators and policy makers, as well as the scientific and health care communities in their efforts to track and upgrade women's health. The research will also assist us in directing our resources to the most pressing crises in women's health.

And, finally, a new initiative is the Judith Stitt Woman Faculty Scholar Program, which is an award made to help develop more women leaders in academic medicine. This support will provide the opportunity for more women to reach leadership positions where they can introduce women-centered concepts into the training of health care professionals.

In closing, let me say thanks to the State Medical Society of Wisconsin for your efforts and leadership. We are indebted to you for the work that you do. We hope to be your partners in the work that lies ahead to improve women's health in Wisconsin.

WMJ

Call for Papers, Reviews, Commentary

In 2000, *WMJ* will examine issues related to public health in Wisconsin. The *WMJ* Editorial Board is seeking original manuscripts related to these themes:

Maternal and Child Health (to be printed in April)
Deadline for peer review papers: January 15
Deadline for other submissions: February 1

Chronic Disease (to be printed in June)
Deadline for peer review papers: March 15
Deadline for other submissions: April 1

Infectious Disease (to be printed in August)
Deadline for peer review papers: May 15
Deadline for other submissions: June 1

End-of-Life Issues (to be printed in September)
Deadline for peer review papers: July 15
Deadline for other submissions: August 1

Geriatric Health (to be printed in October)
Deadline for peer review papers: August 15
Deadline for other submissions: September 1

Environmental Health (to be printed in November)
Deadline for peer review papers: September 15
Deadline for other submissions: October 1

Maternal and Child Health (to be printed in December)
Deadline for peer review papers: October 15
Deadline for other submissions: November 1

In addition, general scientific papers are always appreciated and will be published on a regular basis. All submissions should conform to *WMJ* requirements. For further information contact Kendi Parvin, Managing Editor at 608.257.6781, toll-free at 800.362.9080, or via e-mail at: kendip@smswi.org. Instructions to authors are available on the SMS website at www.wismed.com.

Guest Editorial

Health Care in the US: Is There Evidence for Systematic Gender Bias?

by Molly Carnes, MD

Evidence for gender bias, usually against women, can be found at all levels of the US health care system. This paper addresses three areas where data support such gender bias: the historical use of public monies to fund research predominantly in men, perpetuation of the view in medicine that the male is the norm by androcentric medical school curricula, and use of federal funds through Medicare to provide better reimbursement for conditions more prevalent in men compared to those more prevalent in women.

1. Use of Public Monies to Fund Research Predominantly in Men

> "The current disparity between the health information we have about white males and the information we have about women and people of color contravenes basic ethical principles governing human experimentation .... Awarding support to studies on white males withholds research benefits from other groups of people and possibly exposes such people to risk when they and their physicians follow recommendations based on data from white male subjects."
>
> *Dresser, 1992*

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The practice of medicine and the direction of federal monies in health care is largely driven by data collected from large multi-center clinical trials. Until the recent creation of the Women's Health Initiative in 1992, women were completely excluded from a number of major clinical trials. For example, the Coronary Drug Project, which is hailed as the grandfather of the clinical trial as we know it today, was an enormous and expensive undertaking involving 53 clinical centers, enrolling 8341 subjects, randomized to one of six treatment groups and followed for at least 5 years. The subjects were all men age 30 to 64.[1] Similarly, the Harvard Physicians' Health Study used federal funding to study 22,071 male physicians followed for at least 60 months[2] evaluating the impact of several therapies in primary prevention of myocardial infarctions. The Lipid Research Clinics Coronary Primary Prevention Trial was another multicenter, randomized controlled trial which tested the efficacy of lowering cholesterol in reducing the risk of coronary heart disease in approximately 4000 middle-aged men followed for an average of 7.4 years.[3] This drove physicians to treat elevated cholesterol levels in both men and women without any data that such treatment benefited women and without assurance that such therapy would not harm women.

Because these studies were of such high profile, they did much to promote the inaccurate perception of the public and physicians that heart disease is a disease only of men. In fact, heart disease is the major cause of death for both genders, killing approximately 500,000 women each year and about 450,000 men,[4] it just occurs about a decade later in women. Exclusion of women from major clinical trials in cardiovascular disease has left physicians in the position of having to extrapolate data collected on men to treat their women patients with heart disease or risk factors for heart disease. Wenger[5] notes that virtually all information on the prevention, recognition, clinical manifestations, therapy, and prognosis of coronary heart disease is derived from studies conducted predominantly or exclusively in middle-aged men. Her paper addresses gender differences in the approach to coronary heart disease, describing recent changes in clinical practice, and the needs and opportunities to enhance care of women with coronary heart disease.

Another large, expensive, federally-funded study that excluded women was the Baltimore Longitudinal Study of Normal Human Aging which began in 1958.[6] This study enrolled only men and studied men exclusively for 20 years. Women were enrolled into the study for the first time in 1979. Nevertheless, a textbook of results from the first 10 years of this study was published entitled, "Normal Human Aging." Hun-

Striving to Improve Health and Health Care of Wisconsin Women

by Molly Carnes, MD, Director, UW National Center of Excellence in Women's Health

In October, 1998, the University of Wisconsin was selected by the US Public Health Service Office on Women's Health as a site for a National Center of Excellence (CoE) in Women's Health, making it one of 17 such centers nationwide. The CoE is truly an interdisciplinary effort involving faculty from the Schools of Medicine, Nursing, Pharmacy, Business, Veterinary Medicine, and the College of Letters and Sciences. Within the Medical School, faculty from 10 departments participate in Center activities.

The Center is affiliated with a number of clinics including UW Women's Health Clinical Center, Meriter Hospital's Birth and Family Services Program, the Wm. S. Middleton Memorial Veterans Hospital Women's Health Clinic, the UW Comprehensive Breast Care Clinic, the Oakwood Geriatrics Clinic, Belleville Family Medical Clinic, Northeast Family Medical Center, Fort Atkinson Internal Medicine and Pediatrics Clinic, Madison Community Health Center: South Madison Clinic and East Madison Clinic, and the Rhinelander Regional Medical Group.

The goals of the Center of Excellence cross the spectrum of women's health issues. They are 1) to promote models of health care that meet the needs of diverse groups of women across the lifespan; 2) to infuse gender-specific training into health professional curricula; 3) to create community partnerships around women's health issues; 4) to develop strategies for multidisciplinary women's health research; and 5) to address the dearth of women leaders in academic medicine given the inextricable links historically between women leaders and advancements in women's health and women's health research. Woven throughout is the mandate for the CoE to focus on the unique issues faced by women whose voices are underrepresented, who are medically underserved, or who are members of racial or ethnic minority groups.

Among the accomplishments in its first year, the Center has:

- received the only Women's Health and Aging Research and Leadership Training Grant in the country. This grant from the National Institute on Aging supports up to four MD or PhD postdoctoral fellows doing research in women's health;
- reviewed the Medical School Curriculum for gender-specific content and cultural competence;
- received an endowed Professorship in Women's Health from Jean Manchester Biddick through the UW Foundation;
- initiated a Minority Outreach Program through the School of Pharmacy to reduce teen pregnancy among North American Indian Tribes in Wisconsin;
- collaborated with the Wisconsin Women's Health Foundation on development of grants and scholarship programs, a speakers' bureau, and Women's Health Roundtables across the State;
- spearheaded the initiative for three new UW faculty recruitments in the *Biology of Sex and Gender Differences*—a burgeoning research area;
- initiated a monthly interdisciplinary Women's Health Research Colloquium and a more clinically focused monthly Women's Health Forum;
- sponsored the First Annual Elizabeth Karlin Women's Health Conference with speakers including DHHS Secretary Donna Shalala and author Linda Gordon;
- co-sponsored a conference, *Menopausal Health for Breast Cancer Survivors*;
- established a Center for Women's Health and Women's Health Research at UW-Madison;
- collaborated with the Witness Project and the Allied Drive Neighborhood Center to develop programming and find funding to address two pressing health issues in the African American community: breast cancer detection and fitness.

Being a National Center of Excellence in Women's Health will enable us to bring additional initiatives into the State which will enhance opportunities for research, community outreach, and health professional education with the goal of improving the health and health care of Wisconsin women.

dreds of publications have resulted from this work describing the effect of age on multiple systems including arthritis, the heart, vision, hearing, symptoms, and psychometric performance. The importance or possibility of interesting gender differences in the effect of age on these systems is frequently not even mentioned in the discussion of a number of these papers. The absence of attention to gender differences in studies of aging is particularly glaring because women have a longer lifespan than men by about 7 years. Women also, unlike men, have one of the most reliable genetically programmed biological markers of aging, menopause. Now that gender comparisons are possible, substantial and intriguing gender differences are indeed being found between men and women as they age.[e.g. 7]

AIDS[8] and sleep apnea[9] are two other conditions which have inaccurately maintained their reputation as "male" diseases when, in fact, they are major health problems for women as well as men. Part of the problem has been that these diseases were not looked for in women until relatively recently. For example, the initial CDC definition of AIDS and AIDS-related complex did not include gynecological symptoms and cervical cancer was not added to the definition until 1993. Johnson and Fee review the devastating consequences to women of a male-centered definition of AIDS.[8] Physicians initially failed to diagnose AIDS in women, delaying treatment. Because insurance reimbursement and many social serviced were tied to the official AIDS definition, women who were HIV positive but lacked other male-defined clinical symptoms were denied access to services and coverage. As a result of an absence of data about this condition in women, federally-sponsored clinical, social services, educational programs, and research on AIDS targeted predominantly men until a full decade after the disease was first observed in women.[8]

One reason women were excluded from clinical trials of new drugs was because the FDA had a policy of "protectionism" that arose from the horror of thalidomide-induced birth defects in Europe in the 1950s and the DES disasters in pregnant women in the 1940's to 1960's.[10] In 1977, the FDA issued a guideline limiting the participation of women of "childbearing potential" in drug research. Childbearing potential was broadly defined and basically included any premenopausal woman with an ovary and uterus. This policy was not reversed until 1993 when the FDA noted that "fetal protection can be achieved by measures short of excluding women from early trials."[11]

To date, almost all drugs evaluated show gender differences in pharmacology.[10] Issues that must be studied related to drug effects and drug metabolism in women include the impact of fluctuating hormones across the menstrual cycle, the influence of oral contraceptives, the profound physiological alterations during pregnancy, the impact of menopause, and the effect of hormone replacement therapy.[12]

The NIH Revitalization Act reauthorizing legislation for the entire National Institutes of Health (NIH) was signed into law in 1993. This law requires the inclusion of women in most clinical trials as well as sincere and documentable efforts to include women and minority candidates in all NIH training grants.[10]

2. Perpetuation of the view by medical practitioners that the male is the norm by androcentric medical school curricula

Walton et al[13] review how the development of medical science from its beginnings in ancient Greece through the Middle Ages and Renaissance incorporated teachings that women are inferior to men. Plato (428-348 BCE), for example, taught that cowardly or immoral men were reborn as women. Aristotle posited that the female was colder by nature and that this prevented her from becoming the perfect form, the male. Galen (circa 129-200), who was the prince of ancient physicians, also taught that women were imperfect males. Galen's work was translated into Latin and provided the basis for the first medical textbooks (circa 1300-1368) passing on the idea that females were males who were not quite "finished" due to their lack of vital heat and these ideas continued to be expressed in medical texts in the 1500's and 1600's.

Drawing heavily on European medical tradition, the male dominated US medical schools continued the assumption that men were the norm and women were somehow different. This continues today, sometimes in obvious ways, but more frequently in subtle ways. In medical school courses such as physiology and pharmacology, the "70 kg (Caucasian) man" is openly used as the reference standard. Formulas for calculating such physiological process as kidney function are derived for men and then adjusted for women. If the male is the norm, then the female, because she is not male, will always be aberrant. One such example is in the description and teaching of menopause. Menopause, a natural physiological event that all healthy women will experience, is still discussed in many textbooks as a disease and even in the currently used UW Medical Residency Curriculum, menopause is classified as a "gonadal disorder."

Physicians are taught to recognize the typical presentation of a disease as it occurs in men. This, again, is largely because there is far less scientific description of conditions in women. This means that if

there is any difference in the signs or symptoms of that disease in women, physicians may be likely to miss the diagnosis or find the disease late. This will be the case whether the difference in disease presentation is due to biological differences, psychological differences in the interpretation of symptoms, or cultural differences in the expression of disease symptomatology. The symptoms of heart disease, for example, are more likely to be "atypical" in women than men and there is considerable evidence that physicians are less likely to refer women than men for diagnostic evaluations for coronary heart disease.[4,5] This is despite the fact that women are twice as likely to die within the first 2 weeks of a myocardial infarction than men.

Mendelsohn et al[12] reviewed 3827 illustrations that could be identified by sex and gender in 12 commonly used anatomy and physical diagnosis textbooks. In the anatomy texts, 21% of the illustrations were of females compared with 44% males with 34% of the illustrations being neutral. If reproductive illustrations were excluded, 11% were female and 43% were male. Similarly in physical diagnosis texts, if reproductive chapters were excluded, 8.8% of the total illustrations were female. The authors note that this relatively greater proportion of male illustrations seems odd given that women are a majority of the US population and make more frequent visits to physicians. They recommend using sex-specific captions (e.g. instead of "the dermatomes" when the illustration is clearly male, "dermatomes in a man") and avoiding neutral illustrations in favor of equal representation of both sexes.

The androcentric teaching of medicine can be seen in the recent advice provided by the Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure[15] published in the *Archives of Internal Medicine* last year. This is the report of a large federally-funded consensus panel. In Table 7, lifestyle modifications for hypertension prevention and management are given. In the recommendation for alcohol, the table states "Limit alcohol intake to no more than 1 oz (30 mL) of ethanol ... per day or 0.5 oz (15 mL) of ethanol per day for women and lighter-weight people." Are women not people? The wording of this recommendation excludes women from being people. "People" refers to men. Such wording is evidence of the type of subtle and insidious bias which, unfortunately, is commonplace throughout the medical literature.[16]

The Council on Graduate Medical Education in its Fifth Report on Women in Medicine concluded that medical training is inadequately preparing physicians to competently provide care to women.[17] This report called for changes in the scope and content of the medical school curriculum regarding women's health, more gender-specific research, and the development of more women leaders in academic medicine.

3. Use of federal funds through Medicare to provide better reimbursement for conditions more prevalent in men

Men and women have different patterns of illness. Several studies suggest that Medicare disproportionately benefits men. Sofaer and Abel[18] examined the 10 most common illnesses in persons with Medicare and Medigap coverage for which there is a consensus about treatment and found that 3 of 4 illnesses with the highest out-of-pocket costs (e.g. arthritis) were more common in women. Four out of 5 illnesses (e.g. lung cancer) with the lowest out-of-pocket treatment costs were more common in men. They also found that women who supplement their basic coverage by purchasing a typical private insurance "Medigap" policy do not receive as much of an advantage from their purchases as do men.

In an editorial in the *New England Journal of Medicine*, Robert Bulter[19] reviews statistics demonstrating that any cuts to Medicare or Medicaid will adversely affect more women than men. Reasons for this include the greater number of older women than men (of the 32 million elderly Medicare beneficiaries, 19 million are women while 13 million are men, and women use Medicare for about 15 years vs 7 for men), the greater number of poor women than men and greater use of long-term care (at age 65 a man has a 1 in 7 chance of residing in a nursing home vs 1 in 3 for a woman). For the population over age 80, Medicare and Medicaid are basically "women's programs." Three-quarters of older Americans have incomes less than $25,000. The median annual income of older people living alone in 1993 was $14,983 for men and $8,499 for women. Doctor Butler calls for a bipartisan commission to review Medicare and Medicaid reform and to look closely at models of geriatric care which have been shown to improve clinical outcomes as well as save costs.

Goff et al[20] performed a follow-up of a 1996 study which found male-specific procedures reimbursed 44% higher than comparable female-specific procedures. Based on these inequities, HCFA implemented changes resulting in increases from, 9% to 196% for gynecologic procedures. Work and total RVUs were compared for 24 pairs of gender-specific procedures (matched for work, level of difficulty, and time to perform). Time to perform was retrieved from operating room records over 3 years at Virginia Mason Medical Center. Nineteen of 24 (80%) male-specific proce-

dures had higher RVU; 3/24 (12%) female-specific were higher; 2/25 (8%) had no difference. For minor procedures, 10/11 work RVU's were higher for male-specific procedures (e.g. biopsy of penis vs biopsy of vulva, 36% higher). Other differences where reimbursements for men were greater than for women included the following: drain prostate abscess vs drain ovarian abscess, 58% higher; transurethral resection of the prostate vs hysteroscopic endometrial ablation, 164% higher; and prostatectomy with lymph node ampling vs total abdominal hysterectomy with bilateral salpingo-oophorectomy with lymph node sampling, 21% higher. The authors conclude that things have improved, but there is still clear evidence of gender bias in both work and total RVU's for female-specific procedures. The total RVU includes work, practice expense and malpractice. The authors state that practice expenses for obstetricians/gynecologists are third highest of all specialties and malpractice second highest (both significantly higher than general surgery or urology but they did not take this into account in their calculations. If they had, the inequities in reimbursement would be further magnified).

Jecker[21] points out that any age-based rationing of health care would disproportionately affect women. She argues that once the gender issues with age-based rationing are recognized, it becomes morally indefensible. Rationing publicly-funded health care based on age affects women more than men because more women reach old age, women live more years once they reach old age and women rely more heavily on publicly-funded insurance to pay their health care expenses. A policy of age-based rationing incorporates the perspective of a male life cycle which is shorter than the female life cycle. Older women are a very vulnerable group and age-based rationing worsens their plight.

CONCLUSION

In summary, gender bias against women occurs throughout the health care system. The increased awareness of gender inequities and actions toward improvement parallels the increase in the number of women in powerful policy-making positions. For example, a review of federal spending on research by gender by the Government Accounting Office in 1990 was sponsored by women Congress members and resulted in formation of the NIH Office of Research on Women's Health. The Women's Health Initiative, the largest clinical trial ever funded by the NIH, was set into motion by Dr. Bernadine Healy, the first woman director of the NIH. The AAMC[22] reports that despite the increased number of women who have been entering medical schools since the mid-1980's, there are very few women in leadership positions. Perhaps the best way to prevent conscious or unconscious discrimination in research, teaching, or health care policy is to have representation from diverse groups of both men and women in positions of power.

ACKNOWLEDGMENTS

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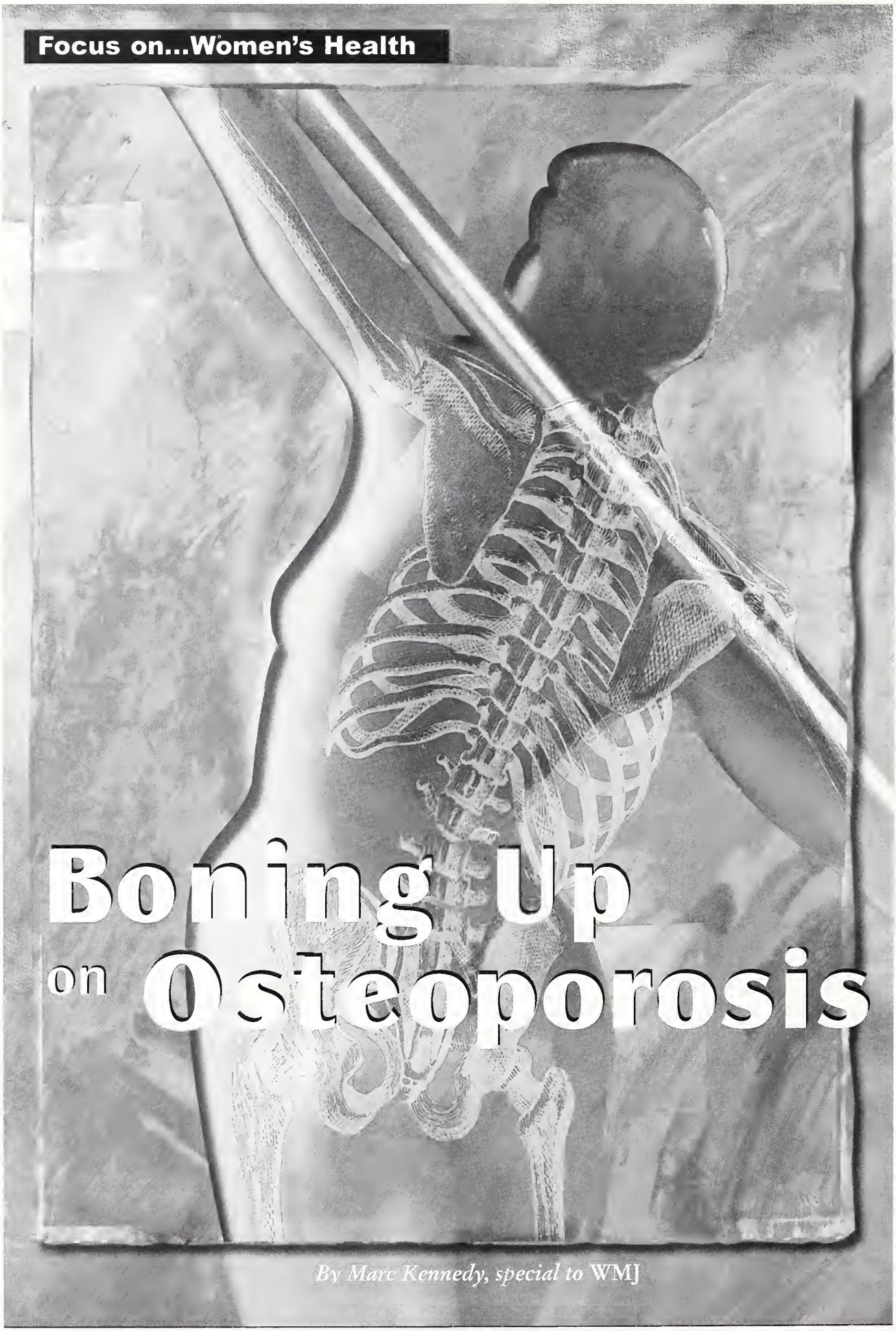

Boning Up on Osteoporosis

By Marc Kennedy, special to WMJ

As little as a decade ago, osteoporosis was viewed by the public, in addition to many health care practitioners, as an inevitable part of aging, like losing hair or memory. For some, a modicum of bone loss may seem a small price to pay for living longer, but for many others it means living in pain along with constant fear of fractures, which can lead to discomfort and restricted mobility at best, and increased mortality at worst.

But in the past five years, a new generation of pharmaceuticals, hormone replacements, and calcium supplements have emerged that can enhance the health of those suffering from fragile bone disease. In addition, improved technology can better diagnose low bone mineral density (BMD). These advances offer relief from this debilitating affliction and hope for improved quality of life as people age – both of which will become major public health issues as the current cohort of baby boomers reach retirement age and the female contingent enter the post-menopausal years. In addition, thanks to medical advances in other fields — cardiology and oncology, for instance — Americans can expect to live longer than ever. So, preventing and treating bone loss will become even more paramount in the next few decades.

Estrogen Replacement: The First Line of Defense

Osteoporosis is one of the most prevalent diseases associated with aging. It affects more than 25 million Americans, 80% of them women, leading to about 1.5 million fractures annually, including about 250,000 hip fractures. According to the *Journal of Bone Mineral Research*, osteoporosis cost the nation $13.8 billion in 1995. Based on current statistics, this would treble by 2040. By 65, one-third of women will suffer a vertebral fracture, and if they live until age 80 or 90, another third will experience a hip fracture. Less than 10 percent of women and 1 percent of men are accurately diagnosed as having osteoporosis and treated effectively, yet primary care physicians see four or more such patients daily.

> *"It's nice to have options to offer your patients. Not only do you have the added benefit of preventing vertebral fractures; you also improve pain control, and thereby decrease narcotic use. This enables patients to be more aware, more mobile. This in turn enhances quality of life."*
>
> **Mary Ellen Csuka, MD**

The good news is that there are now many methods to prevent significant bone loss and many modalities to treat osteoporosis once it begins.

"Estrogen is the first line of treatment," said Mary Ellen Csuka, MD, Associate Professor of Rheumatology at the Medical College of Wisconsin. "There is a consensus that women in menopause should be encouraged to take estrogen to counter osteoporosis, unless there are contra-indicating factors. It's the most effective treatment for loss of the hormone. Women need to also continue taking calcium daily to maintain bone density.

"None of the other medicines will work if you don't have adequate calcium in your body. Calcium is there to make bones strong. If we shut off the reservoir, the body needs a replacement source for it in the diet. Also, you have to have vitamin D to absorb calcium. You normally get it through your skin via sunlight, but as we age our skin is not as efficient in making it. In this part of the hemisphere, we don't get as much sunlight. We're covered up, plus with the warnings about skin cancer, we're not supposed to be exposed to sun at length. So, the best thing to do is to take a multi-vitamin."

The importance increases with age. The intestines absorb less vitamin D and calcium later in life, and the kidneys produce less active vitamin D. Forty percent of men and 30% of women with hip fractures are vitamin D deficient.

Estrogen remains the primary tool against osteoporosis though, and clinical researchers have begun discovering some added advantages as well.

"There is some indication that estrogen improves cardiolipid profiles and may help improve cognitive function," added Dr. Csuka. But despite the benefits of estrogen, many women either quit using it or never start. "Statistics show that about half of the women who have been prescribed for estrogen go off of it. They don't like the side effects — that many continue to bleed though they are post-menopausal. But we've gotten better at controlling that. With the right dosage, women don't have to cycle anymore. The biggest fear is of

breast cancer when taking estrogen. When surveyed, most women believe that this is what they will die of. However, breast cancer accounts for only 4% of deaths among women. The vast majority die of cardiovascular disease. It's certainly important to be aware of the risks of breast cancer, but women should not fear estrogen because of that."

Non-hormonal Therapy

Nevertheless, estrogen is not for all postmenopausal women.

"If you are taking estrogen, you need to have a mammogram once per year," said Dr. Csuka. "Those with an intact uterus also need to worry about endometrial cancer. Also, you can get breast swelling and leg cramps, and those with a history of severe deep vein thrombosis are not candidates for estrogen."

For women who cannot take estrogen, there are a variety of pharmaceuticals that are approved by the Food and Drug Administration for treating osteoporosis. They include bisphosphonates such as alendronate, and Selective Estrogen Receptor Modulators, or SERMs, such as raloxifene, tamoxifen and calcitonin. Like estrogen, they are antiresorptive agents that decrease the rate of bone remodeling and retard bone mineral loss.

"Most family practitioners and OB/GYNs should be familiar with these," said Julie Fagan, MD, Medical Director of the University of Wisconsin Women's Health Center in Madison. "Alendronate has been shown to reduce new incidence of spinal fractures by 50%, which is the end-point that we really care about and try to prevent. Tamoxifen and raloxifene also reduce new vertebral fractures, like estrogen. But they also have anti-estrogen affects on the breast."

Raloxifene has the same benefits on bone and lipid profile as does estrogen, but it is engineered not to affect the breast or uterus.

> *"No doubt osteoporosis will become a bigger health care issue. We still don't think of it in the same category as heart disease and cancer...But we have to recognize that it has serious medical implications that can lead to a downward spiral of medical problems... Preventing these types of fractures by controlling bone loss is a basic health issue – a real quality of life issue – that we need to be addressing."*
>
> **Julie Fagan, MD**

"Raloxifene is a good alternative for patients to take who have a positive family history of cancer, and are also at risk of osteoporosis," said Dr. Csuka. "But it can't be given in immediate perimenopausal women because it makes hot flashes worse. It has been getting good press lately. Early studies indicate that it could prevent breast cancer like tamoxifen. The studies are preliminary, but encouraging."

Alendronate has other preventative properties as well as therapeutic ones, and can be used in conjunction with estrogen.

"It has recently been shown that estrogen and alendronate have an added effect," said Dr. Csuka. "In this scenario, the woman has taken estrogen since menopause. Now, at 65, we recommend she get a bone mineral density scan to see if the estrogen is sufficient; if not, then we start her on alendronate as well."

However, alendronate has disadvantages.

"With alendronrate, there are gastrointestinal problems," she added. "You have to get up early in the morning and take the pill with water only, not eat anything else, and remain upright for a half-hour. It complexes with anything ingested. Even coffee decreases absorption. It can be a pain, but I've been impressed with most women who take it. They will go through with the increased inconvenience.

Another new drug on the horizon is risedronate, a potent bisphosphonate that effectively treats Paget's disease of bone and other metabolic bone diseases.

"We anticipate it will get clearance to use for osteoporosis sometime in early 2000," said Dr. Csuka. "It reduces fracture rates in large trials. For some patients who find that they can't take alendronate, it's a nice option."

Calcitonin was previously used only by injection, which did not prove very popular. But now it is available as a daily nasal spray for women who are five years post-menopausal. Some report minor side effects, including runny nose, nasal sores and nosebleeds.

Another alternative which may soon be available is an older bisphosphonate, etidr-

onate, that has also been used for years for Paget's disease.

"It doesn't yet have FDA approval," said Dr. Csuka, "but there are very good studies that indicate when taken in cycle, 400 mg for two weeks every three months, it demonstrates that it can be effective. It's more convenient for patients who can't be bothered by the early morning routine of taking something with water only and standing around for a half-hour without food.

"It's nice to have options to offer your patients. Not only do you have the added benefit of preventing vertebral fractures; you also improve pain control, and thereby decrease narcotic use. This enables patients to be more aware, more mobile. This, in turn, enhances quality of life."

Diagnostics

In addition to family and medical history, determining the level of bone mineral density will help physicians understand where a patient stands regarding osteoporosis. The standard method now is the dual x-ray absorptiometry scan, though new techniques that are faster and more user-friendly are helping physicians identify potential problems that may require a more in-depth DXA procedure.

"The dual x-ray scan is the most precise method," said Dr. Csuka. "It gives us a view of the lumbar spine and hip and tells us how much calcium is in the area. It is low radiation, but it takes about 10 minutes and is a rather large, cumbersome machine. There are several peripheral modalities available now that are quicker and allow us to get an assessment to see if there is something wrong. The newest one is getting an ultrasound of the heel. It doesn't correlate to getting a 'DXA' of the hip, but is useful as more of a screening tool. If the ultrasound shows something abnormal, then we need to get the central 'DXA.' Peripherals don't give us enough information to enable us to make good decisions. It's important to recognize that we can't rely on peripherals alone."

The National Osteoporosis Foundation suggests guidelines for when women should get peripheral BMD exams, but "my recommendations differ," said Dr. Csuka. "I think every woman who is menopausal should have one. But those who have significant risk factors should definitely have one: a mother or sister who has had a

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hip fracture or history of osteoporosis. A woman with use of cortico-steroids, say for asthma treatment, or thyroid suppressive therapy or hyperthyroidism."

Other physicians share Dr. Csuka's views about testing.

"I'm liberal in ordering the osteoporosis tests," said Vanessa M. Barnabei, MD, PhD, Associate Professor, Obstetrics & Gynecology. "They are fairly expensive — about $300 — but the cost benefit ratio is very reasonable if you consider you are preventing hip fractures, which can be extremely costly considering hospital time, rehabilitation and other residual negative health effects."

There is a standard for reimbursing BMD scans according to the federal Bone Mass Measurement Act, which became effective in 1998. It ensures access to bone mineral density testing every two years, or more frequently if determined necessary, for those 65 years or older.

On the Horizon

Treating, diagnosing and preventing osteoporosis have come a long way in the last few years, and new drugs and diagnostics are emerging as well.

"There has been some basic research on blood test markers of bone turnover that may eventually be more accurate than the dual x-ray technique, but nothing clinical yet," said Dr. Fagan. "The scan is a reasonably good surrogate marker, but it doesn't always predict osteoporosis well. There are people with good bone mineral density that tend to have fractures as well. This new test looks at osteocalcin, and measures osteoclastic activity. It gives a picture of net bone loss in post-menopausal women. As far as I know, this test is not being used unless someone is referred to a bone specialist."

Doctor Fagan added that there is clinical research ongoing within the alendronate family of compounds.

"The big limitation for some of these compounds like alendronate is heartburn, since it has to be taken daily on an empty stomach," she said. "But the results are quite good, especially if the BMD is low to begin with."

The next step is to find methods of preventing osteoporosis as early as possible among those likely to develop the disease.

"The next hurdle is to make women understand their risks even though they are asymptomatic," said Dr. Barnabei. "It is difficult for most people to take drugs daily when they aren't suffering obvious effects.

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We don't see benefits of prevention right away, so compliance can be a problem."

Summary

Osteoporosis may have once been considered just another harbinger of the aging process, like liver spots, gray hair and big ears. But few aging Americans today will stand for it, literally and figuratively, now that there are various treatment alternatives at hand, and more on the way, thanks to medical advances in diagnostics and therapeutics. Baby boomers will be not only the largest, oldest cohort this nation – perhaps the world — has ever seen, they will also be the most active. And, they will be insistent and vocal about receiving medical care that allows them to fulfill their elder years with myriad pursuits; activities which will require mobility and pain-free living as much as possible.

"No doubt osteoporosis will become a bigger health care issue," said Dr. Fagan. "We still don't think of it in the same category as heart disease and cancer, I guess because it is not lethal right away. But we have to recognize that it has serious medical implications that can lead to a downward spiral of medical problems that can mean the need for extended nursing care or prolonged illness. Those who suffer from it acutely can hardly do anything for themselves. People with spinal fractures are miserable with pain and a good hip fracture will take eight weeks healing time. Preventing these types of fractures by controlling bone loss is a basic health issue — a real quality of life issue — that we need to be addressing."

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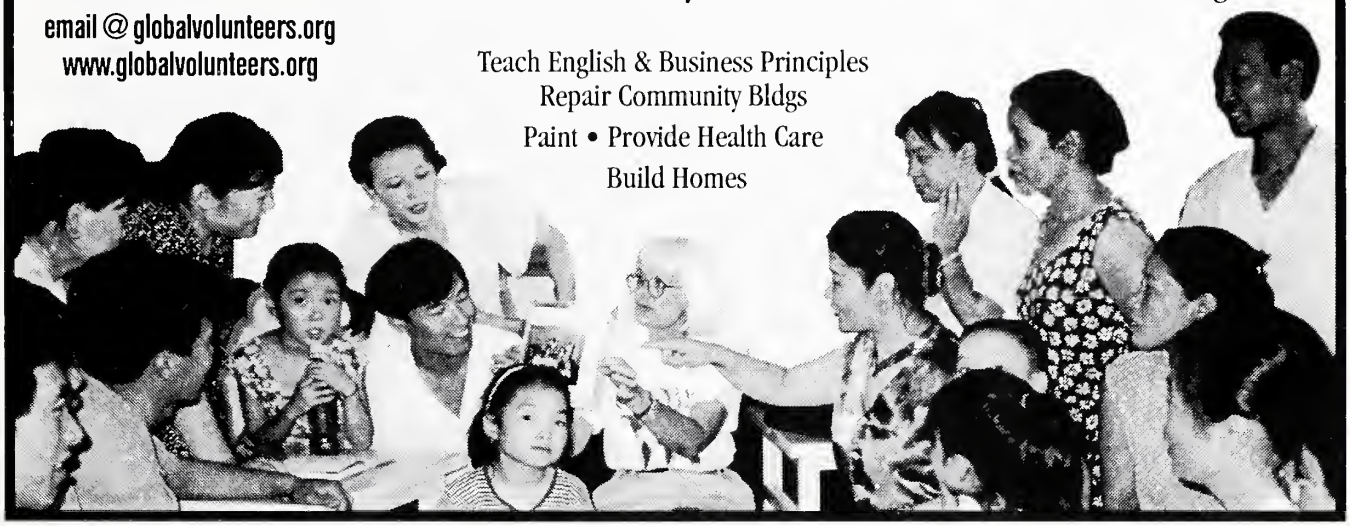

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Osteoporosis

Patient Awareness & Choices Key to Prevention

By Marc Kennedy, special to WMJ

Ignore your bones and they will go away. In other words, without a healthy diet and robust lifestyle choices, bones will deteriorate sooner than later. Like death and taxes, some things are unavoidable, and losing bone mass at a certain age is certainly one of those processes.

Just how much bone mass one loses depends on how well a person builds bone mass during formative teen and early adult years, maintains healthy practices throughout life and follows the prescribed instructions for taking pharmaceuticals and supplements to maintain bone mass.

"It's inevitable that women, and men, too, will lose bone mass," according to Mary Ellen Csuka, MD, Associate Professor of Rheumatology at the Medical College of Wisconsin, who added that pain, suffering and early death due to fractures is not. "Prevention is always better than treatment. Now we have new compounds that have truly revolutionized treatment for osteoporosis. It's analogous to treating heart disease — we want to treat heart disease in its asymptomatic phase, so we want to prevent a myocardial infarction by lowering cholesterol. We want to do the same for osteoporosis — we want to prevent hip fractures from occurring. Up until a few years ago, we didn't have good treatment or diagnosis. Now we have both, with estrogen replacement and a new generation of drugs for those who can't take the hormone, and a reliable bone density scan, there is a great deal we can do."

But getting this message across to the appropriate audience at the right time is not always easy. Many women keep up with medical advances through the Internet, popular health magazines and other sources. But for those with lower socioeconomic status or resources, it is not as easy. Still, according to experts, these women are receptive to messages concerning osteoporosis as well as other health care issues such as cancer and heart disease. It just takes a little more effort to reach them.

"We try and look ahead of the curve to prevent osteoporosis as much as we can," said Julie Fagan, MD, Medical Director of the University of Wisconsin Women's Health Center in Madison. "We work with women in their late forties, and try to shore up bones and prevent future fractures. But I'll also screen men who are prone to bone loss, such as those who are thin or smoke or take steroids or seizure-control drugs."

Though women suffer from osteoporosis by an 8-to-2 ratio to men, the latter still experience bone loss, but at a smaller rate; men also have more dense bones to begin with.

"Smoking is a large factor," added Dr. Fagan. "Poor diet and lack of exercise both contribute to osteoporosis. These are areas in which physicians can really influence patients. People are much more likely to take advice from their physician than just about anyone else."

But others, particularly teenage girls, often seem impervious to messages about diet and smoking. It takes a concerted and repetitive effort from medical professionals with support from family members to help the information hit home. Some habits, such as smoking, are obvious health hazards. Others are more subtle, yet threaten the future health of young adults. Soft drinks are a good example.

"Teenagers, especially girls, who drink a lot of soda don't know it, but they are putting themselves at risk for future bone density problems," said Dr. Fagan. "Most sodas contain phosphorus, which actually *removes* calcium and has a negative affect on bone mass."

In addition, Dr. Csuka says, "The more bone mass you create by the time you're in your late teens and early twenties, the more bone you will keep as you age and the longer it takes when you start to lose it. That's why we can't encourage young women enough to make sure they get sufficient daily quantities of calcium while in their teens. The earlier you build good bone mass the better."

Unfortunately, kids often substitute soda for milk and calcium enriched juices, which they should consume to help build bone mineral density (BMD) during this crucial growth period. After age 10, most

Americans fail to ingest the recommended daily amount of calcium.

But to Dr. Fagan, one of the most chilling statistics is the increased smoking of teenage girls.

"Smoking is a huge health risk for young people," she said. "But they think they are immortal. It's so hard for them to visualize how what they do now will affect them significantly 30 or 40 years down the line. When I talk and counsel young women of that age group, I try to look at the situation from their perspective. They are so intent on looking cool and looking good, I take them out in the hall and show them older people who are suffering from serious osteoporosis. That seems to get their attention at least."

Currently, 25% of American adults smoke. By the time they reach 80 — presuming they don't succumb to increased risk of heart disease or cancer due to smoking — their average bone mineral density will be 6 to 10 percent lower than non-smokers. This lower BMD doubles the risk for spine fractures and increases hip fracture risk by 50 percent. One in eight hip fractures in women is due to long-term cigarette use. Fractures also heal more slowly in smokers. However, data indicate that quitting cigarettes can slow or prevent additional bone loss.

There are plenty of things that adults can do to prevent osteoporosis as well, but it goes beyond habit and lifestyle.

"Certain things are modifiable," Dr. Fagan added, "smoking, exercise, diet, moderate alcohol consumption. But as we get older, we need to look at our surroundings. We need to prevent falls by using assistive devices, getting rid of throw rugs, and avoiding stairs if possible. It's up to us as physicians to really talk to patients about it. It can even be as simple as making sure they improve their eyesight so they can see what they are doing and where they are going."

Exercise is a Key

"Exercise programs are important in preventing osteoporosis," said Dr. Csuka. "It's always best to start when you are young. As physicians, we can encourage people to do this. But it has to be weight-bearing exercise. While swimming may be terrific for preventing heart disease, it doesn't do much for osteoporosis. So some of each type of exercise is preferable."

The benefits of exercise are not limited to those who start young, however. "Even little old ladies sitting in chairs in nursing homes can benefit from lifting exercises," said Dr. Csuka.

"We can't undervalue the benefits of exercise as a precaution against falls," added Vanessa M. Barnabei, MD, PhD, Associate Professor, Obstetrics and Gynecology at the Medical College of Wisconsin. "But it has to be weight-bearing exercise. Building muscle mass improves tone and agility and helps prevent falls."

Counseling Critical Component

Part of treating any patient for osteoporosis is determining their risks for developing osteoporosis.

"Particularly with perimenopausal and early menopausal women, we discuss their calcium intake, how much to take, how much and how to exercise, and other preventive therapies that they can do without just relying on pharmaceuticals," said Dr. Barnabei. "We look at their family history and their body structure. While the level of peak bone density is largely genetically determined, early environmental influences can make a difference. If a woman is sedentary as a teen or did not drink as much milk as recommended, she won't reach her peak bone mineral density. There are also some ethnic factors that we discuss. For example, Asian and Caucasian women differ from African American women, who don't get as many fractures. It isn't as though I can say exactly that because your mother broke her hip that you will; there are other factors involved. But looking at family and medical history is a good start."

Reaching All Audiences

Some studies indicate the importance of reaching all audiences at risk of osteoporosis, including those of lower socioeconomic status. A recent Texas study published in the *Journal of the American Board of Family Practice* indicated:

"...Lack of knowledge of the effects of estrogen appears to be a primary factor in the reluctance to use estrogen. At least one half and at times up to 79 percent of women answered that they did not know the effect of estrogen on their bodies, which indicates physicians are not providing enough information or there was insufficient comprehension of this information for women to make an informed choice about taking estrogen replacement...This study illuminates the need for physicians to clarify the role of estrogen replacement for their female patients, particularly those in lower socioeconomic groups. . ."

It is up to medical professionals, and to an extent parents, to inform children and teens of the need for diligence in ensuring they consume sufficient calcium in their diet.

"Regarding raising awareness, we have got to start talking to patients when they are young," said Dr. Csuka. "Certainly, there are going to be people who genetically have low bone mass no matter what you do. But you have to maximize the genetic potential when the bones are growing."

"What worries me, said Dr. Barnabei, "is that many doctors aren't taking enough time for counseling to ask the right questions of their patients. There is a lot of good information about menopause and osteoporosis; about prevention and treatment. If we don't give them the appropriate information, they will get it from less reliable sources."

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Gender Differences in Acute Myocardial Infarction: The University of Wisconsin Experience

Archna Sukhwal Hendricks, MD, Brian Goodman, PhD, James H. Stein, MD, and Molly Carnes, MD

ABSTRACT

Objective: To investigate gender differences in baseline characteristics, presentation, and treatment of patients with acute myocardial infarction (MI) admitted to the University of Wisconsin Hospital Coronary Care Unit (CCU) over a 1-year period.

Methods: A retrospective review was performed on the charts of all patients (n = 293) admitted to the CCU in 1996 with a discharge diagnosis of acute MI. In 83 women and 187 men with analyzable data (n = 270), 42 factors related to baseline characteristics, presentation, treatment, and outcomes were identified and analyzed for gender differences.

Results: On average, women were 5 years older than men ($p<.01$). By univariate comparison, women were less likely than men to be smokers ($p<.001$); more likely to have underlying hypertension ($p<.01$), diabetes mellitus ($p<0.05$), non-Q-wave infarctions ($p<.01$), and congestive heart failure (CHF, $p<.05$); and more likely to have received diuretics ($p<.001$) and ACE inhibitors ($p<.01$). While women were less likely than men to undergo coronary angiography ($p<.05$) and more likely to have echocardiograms ($p<0.05$), rates of coronary artery bypass graft surgery, angioplasty, and the use of thrombolytics were similar for men and women. Clinical outcomes were similar in both groups. CHF, hypertension, and use of ACE inhibitors remained the only significant gender differences when data were adjusted for age.

Conclusion: Comparing men and women with acute MI at UW Hospital revealed some differences in clinical characteristics and management. Except for CHF, hypertension, and use of ACE inhibitors (all of which may be related), these differences disappeared when the data were adjusted for age. This is particularly notable for the disappearance of the difference in the use of coronary angiography between men and women. The comparable use of beta-blockers, aspirin, and nitrates, and the similar clinical outcomes in men and women, suggest less gender difference in MI management at UW Hospital than reported in other studies.

All authors are with the University of Wisconsin Department of Medicine, Madison, WI. Doctor Goodman and Dr. Carnes were with the Geriatrics Section when this work was prepared. Doctor Stein is with the Cardiology Section. Doctor Carnes is also with the Center for Women's Health and Women's Health Research, and the William S. Middleton Memorial Veterans Hospital, both in Madison, WI. Doctor Hendricks was a fellow when this work was performed. Reprint requests to: Molly Carnes, MD, Director, Center for Women's Health and Women's Health Research, University of Wisconsin, 202 S Park St, Madison, WI 53715; 608-267-5566; FAX 608-267-5577; email mlcarnes@facstaff.wisc.edu

INTRODUCTION

Coronary heart disease (CHD) is a women's health issue. CHD is the leading cause of morbidity and mortality in women in the United States accounting for a quarter of a million deaths annually. One of every 2 women over age 50 will die of CHD.[1] CHD is also a major contributor to illness, disability and an unfavorable quality of life for women. Numerous studies have detailed gender differences in presentation, interventions, and outcomes after acute myocardial infarction (MI). It has been reported that women have higher mortality after acute MI,[2-6] are older when they present with CAD,[3,5-14] and are less likely to undergo cardiac procedures such as coronary angiography, coronary artery bypass graft surgery (CABG), and percutaneous transluminal coronary angioplasty (PTCA).[10,14,16] Women, however, have been found to have similar favorable outcomes after such procedures.[17] This study reviews the in-hospital course of 270 patients with acute MI admitted to the University of Wisconsin (UW) Hospital Coronary Care Unit (CCU) and explores gender differences in demographics, presentation, treatment, interventions, and outcomes in this group of patients.

METHODS

Selection of Patients

This study was approved by the UW Institutional Review Board. All patients who suffered an acute MI between January 1, 1996 and December 31, 1996 as identified by discharge coding diagnosis of "Acute Myocardial Infarction, initial" were preliminarily included for chart review. The entire hospitalization had to be completed by December 31, 1996 for inclusion in the study. Ninety women and 203 men were

initially identified in this manner. Each chart was reviewed by 1 person looking at 42 separate factors.

Definitions

Acute MI was defined by dynamic electrocardiogram (ECG) changes typical of acute MI, typical (prolonged chest pain) or atypical symptoms with serial cardiac enzyme elevation, or combinations of symptoms and ECG findings with cardiac enzyme elevations. Seven women and 16 men were excluded after review as they did not suffer an acute MI or their infarction took place at an outside institution. Patients who were transferred from outside institutions while in the process of suffering infarctions were included in the study if adequate data were available.

History of smoking was defined as current tobacco use or tobacco use within the past 10 years. Congestive heart failure (CHF) was considered present if clinical criteria were recorded, including elevated jugular venous pressure, pulmonary crackles, edema, or x-ray evidence of pulmonary congestion. Bleeding was defined as clinically significant bleeding requiring serial hematocrit analysis and/or transfusion of packed red blood cells. Diabetes mellitus and hypertension were considered present if these diagnoses were recorded in the admission note, progress notes, or discharge summary.

Data Collection

Data were collected by systematic chart review. Patients with incomplete data were excluded from the analysis. This left 83 women and 187 men for analysis.

Statistical Analysis

Univariate comparisons of characteristics between the men and women were performed using the Student *t* test for continuous variables and the Chi square test for categorical variables. Multiple logistic regression was applied to determine the independent effects of gender controlling for age (< 65 vs. ≥ 65 years) and the presence of age and gender interactions. The Student *t* test was used to determine the statistical significance of the logistic regression coefficients. Odds ratios and 95% confidence intervals were calculated.

RESULTS

Baseline patient characteristics and prior cardiac history are summarized in Table 1. Women were older than men by an average of 5 years ($p < 0.01$). In the univariate analyses, women were less likely to have smoked within 10 years ($p < 0.001$) and more likely to have underlying HTN ($p < 0.01$), diabetes mellitus ($p < 0.05$), and a history of CHF ($p < 0.05$). Except for hypertension and a history of CHF these differences were no longer present when data were age-adjusted in the multivariate model.

Infarct characteristics are summarized in Table 2. The occurrence of chest pain on presentation to the hospital was similar in both genders as was the number of anterior wall infarctions. Women were more likely to suffer non-Q-wave infarctions ($p<0.01$) but this difference disappeared after adjustment for age.

Complications of the incident acute MI are summarized in Table 3. Right ventricular dysfunction, shock, arrhythmias, bleeding, and mortality were similar in both groups, both in univariate and multivariate comparisons. CHF, however, was more common in women, occurring in over 50% of the women ($p<0.05$). When controlling for age, gender remained independently associated with CHF, hypertension and the use of ACE inhibitors. No age-gender interaction was observed for this or any of the comparisons.

Information on in-hospital interventions is summarized in Table 4. Use of thrombolytics was equal in both groups. Women were less likely to undergo coronary angiography ($p<.031$) and more likely to have echocardiograms ($p < 0.05$) in the univariate analyses, but these differences disappeared after adjustment for age. Rates of coronary angiography and revascularization procedures were comparable between genders. Medical therapies during hospitalization were similar between men and women except that women were more likely to receive diuretics ($p<0.01$) and ACE inhibitors ($p<0.01$). The use of ACE inhibitors, but not diuretics, remained greater in women after adjustment for age in the multivariate model. Use of beta-blockers, nitrates, anticoagulants, calcium channel blockers, digoxin, and aspirin were similar between genders both in the hospital and at the time of discharge. Time of onset of chest pain to presentation, length of stay, time in the CCU, length of time to first follow-up appointment, and referral to rehabilitation were similar in both groups. Seven women were taking estrogen at the time of admission and 2 women were started on hormone replacement therapy during their hospitalization.

A subgroup analysis was performed on data from patients with CHF. Although women with CHF were older, age was not a predictor of CHF in women. The mean age of women with CHF was 68 years and the mean age of women without CHF was 64 years. Of the 43 women with CHF, 10 received echocardiograms, 12 underwent angiography, 14 had both tests and 7 had neither test. Of the 67 men with CHF, 14 received echocardiograms, 20 underwent angiography, 24 had both tests and 9 had neither test. Hence, the diagnostic evaluation in men and women with CHF was similar.

DISCUSSION

This observational study of gender differences in patients admitted to the UW Hospital CCU with an acute MI found that men and women were similar in

Table 1. Clinical Characteristics of Patients with Acute Myocardial Infarcation

Clinical Features	Women	Men	Significance level
Number of patients (%)	83 (31)	187 (69)	
Mean age (± SD)	66 (14)	61 (13)	**
Race (% white)	80 (97.6)	172 (93)	
Prior MI (%)	29 (35)	85 (45.5)	
Prior arteriography (%)	38 (46)	79 (42.5)	
Prior CABG (%)	20 (24)	43 (23)	
H/O CHF (%)	19 (23)	25 (13)	*
Smoking within 10 y (%)	32 (36)	111 (61)	***
Hypertension (%)	64 (77)	113 (60)	**
Diabetes (%)	31 (46)	83 (44)	*
Hyperlipidemia (%)	38 (46)	83 (44)	
Family Hx CHD	40 (48)	77 (42)	

*p< 0.05; **p<0.01; ***p<0.001

Table 2. Infarct Characteristics for Women and Men with Acute MI

Feature	Women (%)	Men (%)	Significance Level
Chest Pain	69 (83)	160 (87)	
Anterior Infarcts	35 (51.5)	74 (45)	
Non q-wave infarcts	67 (81)	115 (61.5)	**

*p< 0.05; **p<0.01; ***p<0.001

Table 3. Univariate Comparisons for Women vs Men of Complications of MI

Complication	Women (%)	Men (%)	Significance Level
CHF	43 (52)	67 (36)	*
RV Dysfunction	4 (5)	9 (5)	
Shock	20 (24)	40 (21)	
Arrhythmias	39 (47)	83 (44)	
Bleeding	16 (19)	26 (14)	
Death	9 (11)	17 (9)	

*p< 0.05; **p<0.01; ***p<0.001

Table 4. Univariate Comparisons of Therapies in Women vs Men with Acute MI

Therapy	Women (%)	Men (%)	Significance Level
B-Blockers	60 (72)	148 (80)	
Nitrates	81 (98)	177 (95)	
Heparin	79 (95)	179 (96)	
Warfarin	15 (18)	25 (13)	
Calcium Channel Blockers	28 (34)	48 (26)	
Diuretics	64 (77)	93 (50)	***
Digoxin	30 (36)	49 (26)	
Aspirin	83 (100)	182 (97)	
ACE Inhibitors	53 (64)	83 (44)	**
Thrombolytics	20 (24)	43 (23)	
Coronary Arteriography	55 (66)	147 (79)	*
PTCA	29 (35)	74 (40)	
CABG	11 (13)	33 (18)	
Stent	19 (23)	31 (17)	
Echocardiogram	49 (55)	80 (39)	*

*p< 0.05; **p<0.01; ***p<0.001

regard to clinical characteristics, complications, and management when the data were adjusted for age. Notable exceptions were that women were more likely to have CHF, hypertension, and to receive ACE inhibitors. Women were, on average, 5 years older than men, a finding consistent with medical literature.[3,5-15] There have been conflicting reports regarding the smoking status of women with acute MI;[13] however, most studies report that, as in our study, women are less likely than men to be smokers.[5,7,12-14] In our study, this difference disappeared after adjustment for age.

Also consistent with other studies is the greater prevalence among women of hypertension,[3-9,12-14,16,17] first MI,[10-14,16] and non-Q-wave MI.[4,12] It is this greater likelihood of non-Q-wave infarcts that may account for the higher reinfarction rates found in women.[19] As in our study, higher CHF rates in women with MI's have been found in most studies.[2,12] The association of female gender with CHF was independent of age in our study. Higher CHF rates may be related to the higher rates of hypertension and diabetes mellitus in women in our study since these predict diastolic dysfunction. The greater prevalence of CHF in women undoubtedly accounts for the higher utilization of echocardiograms, diuretics, and ACE inhibitors. Higher diuretic use in women has been noted in previous studies[4] of MI and similarly attributed to higher rates of CHF and HTN in women.

In our study, use of beta-blockers, anticoagulants, and thrombolytics were equal in men and women. This is in contrast to data from the National Registry of Myocardial Infarction-I, a national observational database consisting of information from 1234 U. S. hospitals. In an analysis of these data by gender, Chandra et al[6] found that women had lower rates of aspirin, heparin, and beta-blocker use during hospitalization after acute MI. Another study by Clarke, et al demonstrated lower use of beta-blockers, aspirin, and nitrates in women after acute MI,[15] and utilization of anti-platelet agents was lower in women in a study by Pagley et.al.[4] Chandra et al[6] noted higher mortality rates in women even after controlling for age. In a meta-analysis, however, most of the increased early mortality after MI in women was explained by older age and unfavorable risk characteristics. After controlling for these factors, women actually may have an increased long term survival compared to men.[12] Although our study was small, the mortality rate of 10.8% for women was lower than that found in 15 of the 17 studies reviewed by Vaccarino.[12]

The lower rate of coronary angiography in women in our study is consistent with most,[8,10] but not all[6] previous studies. As in most studies, adjusting for age and comorbid conditions eliminated the gender difference in our study.[3,9,17] Some studies, however, have

found that gender has an independent effect on this difference.[8,10] An interaction between patient gender and race in guiding physician's recommendation for cardiac catheterization was found by Schulman et al[20] using actors complaining of cardiac symptoms. Because almost all of the patients in our series were white, no comparisons of race could be made. Furthermore, we examined only patients with MI who had been admitted to the CCU, which provides no information on potential gender or racial bias in non-CCU settings. Our study confirms that once women received coronary angiography, they were as likely as men to receive revascularization procedures. This has been noted in other studies[17] including data from the Myocardial Infarction Triage and Intervention Registry.[8]

The present study is limited to 1 tertiary care University-affiliated teaching hospital and evaluation of a relatively small number of patients, limiting its power to detect small differences between men and women with acute MI's. We used age as a dichotomous variable and divided patients into 2 groups (< age 65 or ≥ age 65 years) in our logistic regression model. This might have caused subtle gender differences or age-gender interactions to have been missed. This study also analyzed information only on patients admitted to the CCU. It is possible that gender differences existed in the threshold for admission to the CCU by admitting physicians or in the proportion of patients referred to UW Hospital for admission. Furthermore, very few patients in this series were non-white, precluding any meaningful comparisons of race in the analyses. Despite the limitations of this study, it is reassuring for patients and physicians in our state to note that at one of Wisconsin's major teaching hospitals, evaluation of the effect of gender on care for patients admitted to the CCU with acute MI indicates comparable care between genders and better performance than seen in larger series from other institutions.

Table 5. Age Adjusted Comparisons for Women vs Men

Variable	Significance Level	Odds Ratio (95% CI)
Smoking		0.43 (0.28, 0.66)
Hypertension	*	1.61 (1.04, 2.51)
Diabetes		1.57 (0.95, 1.60)
History of CHF	*	5.91 (3.58, 9.75)
CHF	*	4.72 (3.07, 7.26)
Coronary Arteriography		0.67 (0.42, 1.07)
CABG		1.06 (0.62, 1.82)
Echocardiogram		1.53 (1.00, 2.33)
Diuretics		0.50 (0.23, 1.12)
ACE Inhibitors	***	1.97 (1.29, 3.02)

*p< 0.05; **p<0.01; ***p<0.001

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Osteoporosis Risk Assessment by Family Practice Faculty and Residents: A Chart Review

Sarina Schrager, MD, Tanya Kausch, and James A. Bobula, PhD

ABSTRACT

Objective: To assess the frequency of osteoporosis risk assessment of postmenopausal women by family practice faculty and residents.

Methods: Review of 263 charts of women over 50 from 3 residency clinics. Charts were evaluated for evidence of osteoporosis risk assessments or discussion of prevention strategies during the past 2 years.

Results: Overall, 35% of the charts contained documentation of some discussion of osteoporosis. Female physicians discussed osteoporosis more than their male colleagues ($p<0.05$). Documentation of osteoporosis discussions decreased as women aged ($p<0.05$). There was no difference in rates among clinics or between residents and faculty.

Conclusions: The documentation of osteoporosis discussions with high risk women was low in this sample. Strategies to improve osteoporosis screening are necessary.

INTRODUCTION & BACKGROUND

Osteoporosis is a devastating public health problem, affecting more than half of all postmenopausal women in the United States[1] and costing more than $6 billion annually.[2] Current diagnostic modalities are able to identify women with low bone mass, and treatment strategies are able to reduce the amount of bone loss or moderately increase bone density. However, prevention is the best strategy to fight osteoporosis because treatment is expensive and often has significant side effects. Screening and prevention guidelines are varied. The US Preventive Task Force and others recommend annual discussion of calcium intake with postmenopausal women but do not recommend routine bone mineral density measurements. Other groups do recommend routine bone mineral density measurements, but vary as to the age of onset of screening.[3,4,5]

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In reviewing the literature, the authors found no study that measures how often physicians perform an osteoporosis risk assessment for postmenopausal women patients. The only study about physician behavior related to osteoporosis found by the authors was a mailed survey to 300 gynecologists, internists, and cardiologists asking what they do in practice to prevent osteoporosis. Of the 300 physicians interviewed, more recommended exercise and calcium intake than hormone replacement therapy for osteoporosis prevention.[6]

The study's purpose was to review how often osteoporosis risk assessment is documented in a primary care practice.

METHODS

Twelve faculty and 10 third-year residents at three family practice residency teaching clinics were included in the study. A computer list was generated listing all female patients over age 50 at the 3 clinics that included assigned primary providers. Patients matched to those providers included in the study were assigned randomly-generated identification numbers. Available charts were reviewed starting with the lowest identification number. The goal of reviewing 10 to 15 charts per provider was reached in all but 4 cases. In these cases, residents (2 female and 2 male) did not have more than 10 eligible patients. Close to 15 charts were reviewed for each faculty member. A total of 263 charts was reviewed.

To qualify for chart review, a patient was over 50, had been a patient at the clinic for at least 2 years, had at least 4 visits at the clinic, was assigned to 1 of the primary providers being studied, and did not receive nursing home care. African American women were excluded from the sample because of their lower risk of osteoporosis. The providers studied had practiced at the same clinic for over 2 years. The auditor was a second year medical student and was not blinded to the providers.

All of the progress notes, prescriptions, problem lists, phone calls, and prevention flow sheets over a 2-year period from July, 1995 to July, 1997 were reviewed for any mention of osteoporosis, calcium intake, family history of osteoporosis, osteoporosis medications, or hormone replacement therapy. Any document-

Table 1. Rates of Documented Discussion of Osteoporosis by Patient Age (N=263)

Age Group	Charts Audited (% of N)*	Discussion Documented (% of row)**
50-59	101 (38%)	46 (46%)
60-69	74 (28%)	27 (36%)
70-79	43 (16%)	9 (21%)
.> 79	45 (17%)	10 (22%)

* $x^2 = 34.35$, $df = 3$, $p<.001$
** $x^2 = 12.33$, $df = 3$, $p<.01$

Table 2. Rates of Documented Discussion of Osteoporosis by Physician Experience (N=263)

Characteristic	Charts Audited (% of N)*	Discussion Documented (% of row)
Faculty	175 (66%)	56 (32%)
3rd Year Resident	88 (34%)	36 (41%)

* $x^2 = 28.78$, $df = 1$, $p<.001$

Table 3. Rates of Documented Discussion of Osteoporosis by Physician Gender (N=263)

Characteristic	Charts Audited (% of N)	Discussion Documented (% of row)*
Male	140 (53%)	34 (24%)
Female	123 (47%)	58 (47%)

*x^2=l5.06, df=1, p<.00l

ed discussion of osteoporosis or calcium intake qualified as evidence of osteoporosis risk assessment. Discussion of exercise, or hormone replacement therapy alone did not qualify as osteoporosis screening. A 2-year window was chosen to provide an adequate amount of time for the provider to discuss prevention activities.

RESULTS

Overall, 92 (35%) of the 263 charts reviewed had some discussion of osteoporosis documented during the 2-year period audited. The number of charts audited was approximately evenly distributed among the 3 study clinics ($X^2 = 2.47$, $df = 2$, $p>.05$), and there was no significant difference in screening rates between clinics ($X^2 = 0.49$, $df=2$, $p>.05$).

The majority of patients were between the ages of 50 and 69 as of July 1, 1995 (Table 1, $X^2 = 34.35$, $df = 3$, $p<.001$). As women aged, the rate of osteoporosis discussion decreased significantly (Table 1, $X^2 = 12.33$, $df=3$, $p<.01$).

As noted above, the sample included fewer eligible patient charts for residents than for faculty, resulting in significant differences in audited charts between faculty and residents (Table 2, $X^2 = 28.78$, $df=1$, $p<.001$). However, the rate of osteoporosis discussion was not significantly different between these 2 experience groups (Table 2, $X^2 = 2.04$, $df=1$, $p>.05$).

The number of charts audited was approximately evenly distributed among the 15 female and 15 male physicians (Table 3, $X^2 = 1.10$, $df=l$, $p>95$). Female physicians documented osteoporosis discussions significantly more frequently than did male physicians (Table 3, $X^2 = 15.06$, $df=1$, $p<.001$). The highest rate of osteoporosis discussions was among female faculty members (49.1%, 29/64), followed by female residents (45.3%, 29/59), male residents (29.2%, 7/24), and male faculty members (23.3%, 27/116).

DISCUSSION

The overall rate of osteoporosis discussions (35%) was rather low. According to the US Preventive Task Force, every woman should be counseled regarding the importance of adequate calcium intake and exercise to prevent osteoporosis.[7] However, no specific guidelines discuss how often postmenopausal women should be assessed for the risk of osteoporosis. The development of a risk stratification has been discussed as a way of determining who are candidates for bone mineral density measurements. However, studies using risk factor analysis alone showed that it may not be an efficient tool to identify women at high risk for osteoporosis.[8] Until bone density measurements have been proven cost effective in preventing osteoporosis, dietary counseling and risk factor stratification are important in prevention.[9]

The finding that female physicians provide more overall screening for women patients is well documented in the literature,[10,11] though no study has examined osteoporosis screening specifically. The fact that female residents provided more screening than either the male residents or male faculty suggests that screening is not simply a learned behavior, but also a function of gender-related characteristics.

Osteoporosis screening was highest for women between 50 to 59, decreasing with age. Our audits disclosed that osteoporosis was often included in a discussion of menopause and hormone replacement therapy. In older women the subject was rarely revisited. This finding is somewhat concerning since increased dietary calcium, vitamin D, exercise, and even medications can help to prevent osteoporosis in women of any age.[12] It is certainly possible that as women age the number of chronic illnesses increases, leaving less time for the physician to attend to prevention activities.

This study may underestimate actual rates of osteoporosis discussion because it is based on a chart review. The list of health prevention topics is vast, and frequently subjects are discussed but not documented. Further study including patient interviews may show

that physicians discuss osteoporosis with patients more often than is documented in charts. Future research also could include young women who are still building bone to see how often physicians document osteoporosis prevention counseling.

CONCLUSION

The number of postmenopausal women with documented discussion of osteoporosis risk factors and prevention strategies in this sample was low, and women were less likely to have documentation of osteoporosis discussions as they aged. Female providers discussed osteoporosis more frequently than male providers. These results suggest needs to improve education about osteoporosis and to construct institutional methods of assessing and documenting osteoporosis risk factors.

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Increasing Gap in Breast Cancer Mortality Between Black and White Women

Angela Russell, Tricia Langlois, MD, MS, Gale Johnson, MA, Amy Trentham-Dietz, MS, PhD, and Patrick Remington, MD, MPH

ABSTRACT

Breast cancer mortality rates have declined in the United States and in Wisconsin. We examined racial differences in mortality trends among black and white women in Wisconsin and the United States from 1979 to 1996. During this time period, mortality rates *increased* 10% among black women and *decreased* 7% among white women in Wisconsin. These trends were similar nationally, with an 18% *increase* among black women and a 3% *decrease* among white women. The black:white gap in mortality increased among women of all ages—especially among women under age 55. The increasing racial disparity in breast cancer mortality may result from differences in trends in incidence and survival among black women. More research is needed to understand the underlying causes of the disparity in breast cancer mortality between black and white women.

INTRODUCTION

Breast cancer is the most common cancer and is the second leading cause of cancer death among women.[1,2] Recent studies in Wisconsin have suggested that mortality rates are now beginning to decline, especially among women 45 to 64 years of age. An article appearing in the July/August 1999 issue of the *Wisconsin Medical Journal* reported that breast cancer mortality has decreased 3.4% annually in Wisconsin women since 1990.[3] However, it is not known whether this progress is occurring among all women, regardless of race, income, or education. In this paper we examine trends in breast cancer mortality in Wisconsin between 1979 and 1996 and illustrate mortality differences in breast cancer between black and white women in Wisconsin.

Ms. Russell is a graduate student in the Population Health Program in the Department of Preventive Medicine, at the University of Wisconsin-Madison. This work was conducted during a summer elective at the Wisconsin Women's Cancer Control Program, Bureau of Public Health, Wisconsin Division of Health, while Ms. Russell was a student at Beloit College. Doctor Langlois was a fellow at the University of Wisconsin-Madison and the William S. Middleton Veteran's Hospital in Geriatrics and Women's Health; Ms. Johnson is Director of the Wisconsin Women's Cancer Control Program, Wisconsin Division of Health; Dr. Trentham-Dietz is an Assistant Scientist with the University of Wisconsin Comprehensive Cancer Center; Dr. Remington is an Associate Professor in the Department of Preventive Medicine and Associate Director for Outreach and Population Studies, UW Comprehensive Cancer Center. Address reprints to Dr. Patrick Remington, Department of Preventive Medicine, 610 N Walnut St, Madison, WI 53705.

METHODS

Data on Wisconsin and U.S. breast cancer mortality (ICD-9 174.0 through 174.9) for black and white women from 1979 to 1996 were obtained from the Centers for Disease Control and Prevention (CDC) WONDER, an on-line electronic link to the CDC database library. Overall rates, and those for ages 65 and older, were age-adjusted to the 1996 U.S. female population and are expressed per 100,000 population.

To examine trends by age in the U.S. and Wisconsin, age-specific mortality rates were compared for the 5-year periods of 1979-1983 and 1992-1996. In addition, overall U.S. and Wisconsin mortality due to breast cancer were examined using a 5-year moving average. To compare age- and race-specific breast cancer mortality trends, percent change was calculated for each age group. In addition, rate ratios were calculated from 1979-1983 and 1992-1996 to illustrate trends in the differences in breast cancer mortality between black and white women. Although the rates are based on events in the entire population, we calculated 95% confidence intervals to provide an estimate of the significance of changes.[4]

RESULTS

In 1979-1983, the age-adjusted breast cancer mortality rates were similar for black and white women in Wisconsin (37.8 versus 35.4) and the Unites States (33.6 versus 33.8). By 1992-1996, mortality rates were 26% higher among black women compared to white in Wisconsin (41.5 versus 32.9) and 21% higher in the United States (39.6 versus 32.7) (Figure 1).

Between the 1979-1983 and 1992-1996 time periods, breast cancer mortality among white women in Wisconsin declined 7%, primarily as a result of a decline among white women under age 65 (Table 1). The major decline was in the 55 to 64 age group. However, among white women over 65 in Wisconsin, there has been a 3% mortality increase. The changes in

Table 1. Age-specific trends in breast cancer mortality, rate/100,000 population, by race, Wisconsin, 1979-1996

Age	White			Black			Black:White Ratio	
	1979-1983	1992-1996	*Percent Change*	1979-1983	1992-1996	*Percent Change*	*1979-83*	*1992-96*
35-44 years	15.3	13.1	-14%	17.6	25.6	45%*	1.2	2.0
45-54 years	46.0	37.3	-19%	53.3	57.1	7%*	1.2	1.5
55-64 years	83.6	62.3	-25%	80.3	76.7	-4%*	0.9	1.2
65 + years	136	140.5	3%	141.3	162.4	15%*	1.0	1.2
All ages WI	35.4	32.9	-7%	37.8	41.5	10%*	1.1	1.3

* Rate different not significant, p<.05
All ages and 65+ rates are age-adjusted to the 1996 US female population

Table 2. Age-specific trends in breast cancer mortality, rate/100,000 population, by race, United States, 1979-1996.

Age	White			Black			Black:White Ratio	
	1979-1983	1992-1996	*Percent Change*	1979-1983	1992-1996	*Percent Change*	*1979-83*	*1992-96*
35 - 44 years	16.9	14.0	-17%	23.4	24.6	5%	1.4	1.8
45 - 54 years	47.3	39.6	-16%	55.1	60.3	9%	1.2	1.5
55 - 64 years	80.8	70.1	-13%	80.3	86.5	7%	1.0	1.2
65+ years	123	132.2	7%	106.4	138.0	30%	0.9	1.0
All ages US	33.8	32.7	-3%	33.6	39.6	18%	1.0	1.2

All ages and 65+ rates are age-adjusted to the 1996 US female population

mortality among white women in Wisconsin were significant in all age groups. Similar results are seen in the national data, with the mortality decreasing among women under 65, and increasing among women age 65 and older (Table 2).

In contrast, between the 1979-1983 and 1992-1996 time periods, breast cancer mortality among black women in Wisconsin increased 10%. Although these changes were not statistically significant, they are similar to trends among black women in the U.S. Nationally, overall breast cancer mortality increased 18% among black women, with the greatest increase among black women 65 and older.

In Wisconsin in 1979-1983, mortality rates were similar between black and white women 55 and older, and were slightly higher among black women under the age of 55 years. By 1992-1996, the gap increased in all ages (Table 1). The greatest difference was observed in women under 55. Similar trends were observed nationally (Table 2).

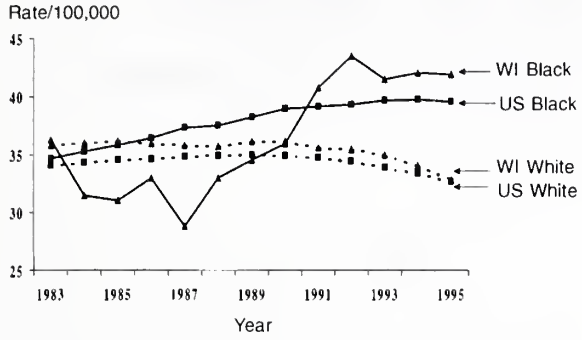
DISCUSSION

During the past 5 years, breast cancer mortality rates have begun to decline in Wisconsin and in the U.S.[3] However, these declines have only been observed among white women. From 1979 to 1983, black and white women had similar mortality rates in nearly every age group. However, since then, breast cancer mortality has declined among white women but increased among black women.

Two major reasons have been hypothesized for the increasing racial disparity in breast cancer mortality. First, the difference in breast cancer mortality rates between black and white women could result from a difference in breast cancer incidence. Although breast cancer incidence is increasing nationally among both white and black women, it appears the increase is faster among black women.[5] Data from the Surveillance Epidemiology, and End Results Program (SEER) show that age-adjusted breast cancer incidence increased 34% among white women from 1974 to 1994 (84 to 113 cases/100,000 women), while the age-adjusted incidence increased 46% among black women (69 to 100 cases/100,000 women).[5] However, it is difficult to determine the trends in the 'true' incidence of breast cancer, since increases in mammography screening rates have led to corresponding increases in breast cancer incidence rates.[6]

Second, the increasing gap in breast cancer mortality rates between black and white women could result from a difference in breast cancer survival.[7-8] Five-year relative survival rates are improving for both black and white women in the U.S.[5] However, it appears that survival rates are improving slightly faster among white women than among black women. Data from SEER indicate that 5-year survival rates increased 14% among white women from 1974-1976 to 1986-1993, compared with an 11% increase among black women.[5] Several factors could contribute to the differences in breast cancer survival between black and white women. First, black women may have less access to or use of health care.[9-10] With decreased access to health care services, it may be that black women will also have fewer clinical breast examinations, fewer mammograms and possibly less timely and aggressive treatment.[11-13] Factors identified to predict usage of mam-

Figure 1. Age-adjusted trends in breast cancer mortality, United States and Wisconsin, by race, 1979-1996. Five year moving average, rate/100,000.



mography screening include level of education, level of income, age, living in rural areas, and amount of social support – these factors may affect black women disproportionately.[14-17] Reported barriers to receiving mammograms that may also affect black women more than white women include financial burden, inconvenience (e.g., having to take off work), transportation, lack of access to quality preventive care, physician failure to recommend or discuss mammography, and women's perceptions of breast cancer.[18] Two studies have postulated that improved access to health care services for black women would eliminate the racial differences in survival.[19-20]

In addition, it is possible that once diagnosed as having breast cancer, black women have not benefited from advances in treatment. Black women have a lower 5-year survival rate and die from breast cancer at a younger age than white women, independent of the stage of diagnosis.[5] Compared with white women, black women have lower survival rates at each stage of diagnosis. However, few studies have considered the trends in these racial differences in breast cancer treatment and the resulting effects on survival.[21-22]

CONCLUSIONS

Breast cancer mortality is decreasing in white women, but it is increasing among black women nationally and in Wisconsin. The increasing disparity may be due to differences in breast cancer incidence and survival. More research is needed to understand its underlying cause and to determine the best methods to reduce the racial disparity in breast cancer in Wisconsin.

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Gender Differences in Hallway Ambulation by Older Adults Hospitalized for Medical Illness

Jane E. Mahoney, MD

ABSTRACT

Bed rest during hospitalization predisposes patients to declines in balance, strength, and bone mass, and may contribute to falls and fractures after discharge. Periodic ambulation may help prevent these adverse consequences. However it is unknown to what extent men and women ambulate during hospitalization. We observed hallway ambulation by adults age 55 and over hospitalized on 3 medical units of the University of Wisconsin Hospital. Hallways were observed during 24 three-hour periods covering the interval from 8AM to 8PM. Prior to each 3-hour observation, nursing staff were asked about characteristics of older patients who were able to ambulate in the hallways. Results showed that women spent significantly less time ambulating compared to men (1.6 versus 4.2 minutes per 3-hour period, p=.047), and were less likely to walk independent of hospital staff (10.4% versus 23.5%, p=.049). If these findings of gender differences in mobility are validated in other studies, they imply that in-hospital rehabilitation programs may need to particularly target women.

INTRODUCTION

In 1997, fractures accounted for 1 million hospital discharges in the United States.[1] The hospitalization rate for hip fractures was 3 times higher for women than for men.[1] Because most hip fractures result from falls, it is important to determine potentially correctable factors that increase falls risk. Risk factors for falls from epidemiologic studies include vision impairment, muscle weakness, balance and gait abnormalities, psychotropic medications, impaired cognition, specific diagnoses such as Parkinson's disease, stroke, and arthritis, and recent illness.[2,3]

Recent hospitalization also increases falls risk. In a 1994 study evaluating older adults hospitalized for acute medical illness at St. Mary's Hospital in Madison, WI, we found that almost 1 in 7 older adults fell in the first month after their hospitalization.[4] These findings led us to conduct a second, prospective study of post-hospital falls that enrolled 311 home nursing patients in Dane County, WI from 1994 to 1996. Patients were enrolled immediately after their hospitalization for an acute medical illness. After enrollment in the study, patients mailed in information about falls each week for 3 months. We calculated the rate of falls for each 2-week interval during the 3 months after hospital discharge. The rate of falls was 8.0 per 1000 person-days during the first 2 weeks after hospital discharge. The falls rate gradually declined over the next 2 post-hospital months, then stabilized at 1.7 per 1000 person-days during the third post-hospital month. Thus, the rate of falls was over four-fold higher the first 2 weeks after hospitalization, compared to the third month after hospitalization (p=.0025 for comparison over time). The public health impact was substantial; 1 out of 8 rehospitalizations in the first month after hospital discharge were for fall-related injuries.[5]

The high rate of post-hospital falls may be due, in large part, to adverse consequences of bed rest during hospitalization, acting on a vulnerable host. In young, healthy adults, bed rest is associated with marked declines in muscle strength, aerobic capacity, orthostatic competence, coordination, and balance.[6] These adverse consequences may develop within days of initiating bed rest. For older adults, who are closer to a threshold of dependency, the cumulative effects of bed rest and immobility during hospitalization may markedly increase their risk for falls. Although human studies have not been performed, data from animal studies suggest that periodic ambulation may help prevent loss of muscle strength with bed rest.[7]

Surprisingly, although there is substantial research about adverse effects from bed rest, there is little data quantifying the extent of bed rest among hospitalized patients. In a 1991 survey, 24% of patients aged 65 and older in acute medical-surgical units had no documented ambulation by nursing staff during the first 7 hospital days.[8] However, this study relied on chart notation, which is likely to be inaccurate. No study has directly observed ambulation frequency among hospitalized older adults.

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Older women may be at higher risk for adverse consequences of bed rest compared to men. With pre-existing lower muscle mass and strength, women may move closer to a threshold of functional dependency compared to men. Indeed, Sager et al have shown that, controlling for other factors, women are at greater risk for loss of independence in activities of daily living with hospitalization.[9] Given the differential effects of hospitalization on men and women, it is important to determine to what extent this may be due to differences in amount of bed rest during hospitalization.

With support from the Wisconsin Women's Health Foundation, we have performed a preliminary 4-month observational study of hallway ambulation by patients on medical units of the University of Wisconsin Hospital. We wished to determine the frequency and duration of hallway ambulation by hospitalized older men and women, and whether significant gender differences exist in patterns of hallway ambulation.

METHODS

Approval for the study was obtained from the Institutional Review Board of the University of Wisconsin Hospital. Hallway ambulation by patients age 55 and over on each of 3 medical units of the University of Wisconsin Hospital was observed for 8 three-hour intervals between 8 AM and 8 PM, for a total of 24 three-hour observation periods (72 hours). Observation intervals were 8 to 11 AM, 11 AM to 2 PM, 2 to 5 PM, and 5 to 8 PM. Neither patients nor staff were aware of the purpose of the observations. Characteristics of ambulation that were observed included use of assistive device, duration and purpose of ambulation, and human assistance provided, if any. Purpose of ambulation was defined as: "for therapy," if the patient was accompanied by hospital staff such as nursing, physical therapy or respiratory therapy; "for other purpose," if the patient accomplished a task during ambulation; "for exercise," if not accompanied by hospital staff and not walking to accomplish a task; and "for various walks/various reasons," if the patient walked more than once and each walk was for a different purpose.

Prior to observation, nursing staff were questioned regarding numbers of patients age 55 and over. For each patient on the unit over age 55, nursing staff provided information regarding the patient's age, length of hospital stay prior to the observation day, ability to walk in the halls, and need for human assistance and/or assistive device to do so.

Continuous data were analyzed by One-Way ANOVA. Categorical non-ordered data were analyzed by Fisher exact for bivariate data, and Pearson Chi-square for data with more than 2 categories. Categorical ordered data were analyzed by Kruskal-Wallis. Logistic regression was performed to control for effect of unit, coded as a dummy variable, and need for assistance from another person. Data were analyzed using Statistical Package for the Social Sciences, Version 8.0.

Table 1. Characteristics of Women and Men Age 55 and Over Hospitalized on Medical Units and Considered by Nursing as Able to Walk in the Hallway (n=118)

Characteristics of Patients	Female (n=67)	Male (n=51)	p-value
Age, mean (SD)	74.0 (10.5)	72.7 (9.7)	.516
Length of stay prior to observation day, mean (SD)	6.6 (8.9)	5.7 (5.4)	.515
Need assistance from another person to walk, n (%)	37 (55.2%)	20 (39.2%)	.061
Use assistive device to walk, n (%)	17 (25.4%)	14 (27.5%)	.480

Table 2. Gender Differences in Hallway Ambulation

Characteristics	Female (n=67)	Male (n=51)	p-value
Including Walks with Hospital Staff:			
Number of walks in 3-hour period, n (%)			
No walks	51 (76.1%)	35 (68.6%)	
One walk	13 (19.4%)	9 (17.6%)	.260
Two walks	2 (3.0%)	4 (7.8%)	
More than two walks	1 (1.5%)	3 (5.9%)	
Excluding Walks with Hospital Staff:			
Number of walks independent of hospital staff, n (%)			
No walks	60 (89.6%)	39 (76.5%)	
One walk	6 (9.0%)	6 (11.8%)	.044
Two walks	0 (0.0%)	3 (5.9%)	
More than two walks	1 (1.4%)	3 (5.9%)	
Minutes of walking independent of staff, mean (SD)	1.6 (4.5)	4.0 (8.9)	.056

RESULTS

Characteristics of Sample

Of 235 older patients hospitalized on the 3 medical units during the hours of observation, half (n=117) were considered by nursing as unable to walk in the hallways. Of those unable to walk in the halls, 55% were women. One hundred eighteen patients were considered able to walk in the hallways, and form the sample for analysis. Of these, 57% were women (n=67).

Table 1 compares characteristics of women and men who were considered able to walk in the halls. As shown in the table, a higher percentage of women were considered by nursing as needing human assistance to ambulate in the halls, although this was borderline significant. There were no significant differences in other patient characteristics that were examined.

Gender Differences in Hallway Ambulation
We first examined all hallway ambulation, including ambulation with hospital staff. As shown in Table 2, women tended to walk less frequently and to take fewer walks, but this was not significant. Overall, including non-ambulators, women spent significantly less time ambulating compared to men, with an average of 1.6 ± 4.5 minutes walking for women, compared to 4.2 ± 9.3 minutes for men (p=.047).

There were significant differences between women and men in the purpose of ambulation. Of the 16 women who walked, 56% walked for therapy (i.e. with hospital nursing or therapy staff), 25% for another purpose (such as going to the nursing desk, getting into a wheelchair, etc.), 12.5% for exercise, and 6.3% for various walks and various reasons. Of the 16 men who walked, fewer walked for therapy or another purpose, and more walked for exercise: 25% for therapy, 6.3% for another purpose, 43.8% for exercise, and 25% for various walks, various reasons (p=.040).

To determine if women were less likely to walk independent of hospital staff, we next evaluated ambulation including only walks that occured alone or with family. Only 10.4% of women walked independent of hospital staff, compared to 23.5% of men (p=.049). As shown in Table 2, women walked fewer numbers of times independent of hospital staff. Women also spent less time walking in the hallways compared to men, although this was borderline significant.

After controlling for unit, men were 2.76 times more likely to walk alone or with family compared to women (95% CI 0.99-4.68). After additionally controlling for need for assistance from another person, men were 2.44 times more likely to walk alone or with family (95% CI 0.83-7.15). The fact that the odds ratio changed only slightly when adjusting for need for assistance suggests the effect of gender is independent of level of assistance. However the 95% confidence interval is wide, and the effect of gender is not significant (p=.10).

DISCUSSION

Our preliminary results show that both men and women ambulate infrequently in hospital hallways during hospitalization. These results suggest that older adults are at high risk for adverse effects of immobility during hospitalization. Bed rest is associated with a 50-fold increase in loss of bone.[6] Bed rest related changes in muscle protein synthesis and breakdown begin as early as day 2 of immobilization.[6] Thus, with an average length of hospital stay for older adults of almost one week,[1] clinically significant losses of muscle and bone mass may accrue.

Our data also suggest women spend less time ambulating in hospital hallways compared to men, and are less likely to ambulate independent of hospital staff. Part of the decreased propensity to ambulate for women may be due to the fact that a higher percentage of women required assistance to walk in the hallway. However, our logistic regression analysis suggests, with a 90% likelihood, that women are less likely to ambulate even after adjusting for need for assistance.

It is unknown if this decreased ambulation places women at higher risk for adverse consequences. It is known, however, that women are more likely to suffer functional decline during hospitalization.[9] Part of the increased risk for functional decline may be due to the fact that women have lower pre-existing muscle and bone mass. However, our data raise the possibility that part of the increased risk may be due to the fact that women ambulate less. Further study is needed to determine if differences in ambulation contribute to significant differences in functional outcomes.

While it is unclear why women may be less likely to ambulate in hospital hallways compared to men, fear of falling may be one important reason. Howland et al have shown that, after adjusting for other factors, women are 3 times more likely to report fear of falling compared to men.[10] Sixty percent of community-living older women report they are fearful of falling, and over half of older adults who report fear will avoid activities because of it.[10] Fear of falling may be even more prevalent in the hospital due to changes in the environment and in patients' physical capacities.

There are a number of limitations to this study. First, we were unable to determine patients' frequency of ambulation in their hospital rooms. However, the small size of patients' rooms and the presence of large pieces of furniture limit in-room ambulation to very short distances. Second, we do not know what fraction of on-unit time was available for ambulation. Ward routines, tests, evaluations, and therapies may all limit the time available for ambulation. Third, because this was a preliminary observational study, we did not obtain consent for chart review. Thus, we were not able to evaluate severity of illness or other patient characteristics that may have affected ambulation. However, we did control for need for assistance with ambulation, which can be considered a marker for severity of illness and/or pre-existing poor functional status. After controlling for walking dependency, the magnitude of the gender effect changed only slightly. Finally, our sample size was small and few people walked without assistance. This limited our power to detect significance in logistic regression. Further research is required to verify our observations, and determine factors that may affect frequency of hospital ambulation for both men and women.

In summary, our results suggest both men and women ambulate infrequently in the hospital. Excess bedrest and immobility may have important pathophys-

iologic implications that ultimately may impact on post-hospital risk of falls and fractures. Given the low frequency of ambulation independent of hospital staff, both men and women will require additional therapies to maintain mobility and prevent loss of bone and muscle mass. If our findings of gender differences in mobility are validated in other studies, then hospitalized older women may particularly benefit from in-hospital programs to improve ambulation.

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Gender Disparities in Mortality Trends, Wisconsin, 1980–1995

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ABSTRACT

One of the major goals of Healthy People 2000 is to reduce health disparities among Americans. All-cause death counts and mortality rates for Wisconsin by age and gender were obtained by accessing the Centers for Disease Control's (CDC) mortality information via WONDER, the CDC's web-based link to its databases. Mortality trends from 1980 to 1995 were assessed by gender and age overall, and for the leading causes of death. Indirect age standardization was used to assess changes in the mortality rates. From 1980 to 1995, mortality rates declined for males and females and in every age group in Wisconsin, leading to almost 5000 fewer deaths than expected in 1995. Although mortality rates continue to be higher among males in every age group, the rates are declining twice as fast among males (13%) than females (7%). There were 3721 fewer deaths among males, accounting for about 75% of the decline in deaths. This disparity resulted from differences in mortality trends from motor vehicle accidents and HIV among young adults and cardiovascular disease and cancer among older adults. Public health needs to carefully monitor mortality trends to assure that progress in disease prevention is achieved for males and females of all ages.

INTRODUCTION

One of the major goals of Healthy People 2000 is to reduce health disparities among Americans.[1] The problem of health disparities among different groups of Americans is not just a concern at the national level, but at the state level also. The purpose of this study is to determine whether there are gender-related health status differences in Wisconsin, and if so, determine their trends over the past 2 decades, as well as the causes. This information can then be compared to the Healthy People 2000 goal to determine if Wisconsin is attaining the health improvements outlined for the nation for the year 2000.

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METHODS

All-cause death counts and mortality rates for both genders combined, males, and females were obtained for the years 1979-1996 for Wisconsin and the US by accessing the Centers for Disease Control's (CDC) mortality information via WONDER, the CDC's web-based link to its databases. The mortality rates for each gender were stratified into 7 different age groups. If the age group spanned more than 10 years, the rates were age-adjusted to the 1995 standard U.S. population. To account for year-to-year variation in mortality rates, 3-year moving averages of the rates were calculated for each age group. Thus, the rate for 1980 is actually the average of the rates for 1979, 1980 and 1981. Similarly, the rate for 1995 is actually the average of the rates for 1994, 1995 and 1996.

Indirect age standardization was used to assess changes in the mortality rates from 1980 to 1995. The rate in 1980 (based on the 3-year average from 1979 to 1981) was determined for each age group and multiplied times the population in that age group in 1995. This produced the number of deaths expected in 1995, if the rate in 1980 had not changed. This expected number of deaths was then compared to the observed number of deaths in 1995. Finally, to determine the factors influencing each age group's mortality trend, the trends in the leading causes of mortality for each gender and age group in 1980 and 1995 were analyzed.

RESULTS

From 1980 to 1995, the all-cause age-adjusted mortality rate in Wisconsin declined by 10%, with almost 5000 fewer deaths than expected in 1995 (Table 1). This is similar to the 12% decline seen in the U.S. during this time period. The largest relative decreases were seen in infants and the 1 to 14 year age group, with 28% and 27% decreases, respectively. The remaining age groups had decreases ranging from 22% to 5%.

Female all-cause mortality rates were consistently less than those of males for each individual age group and all ages combined, from 1980 to 1995. However, the age-adjusted mortality rates for all ages declined more for males (13%) than for females (7%) (Figure 1, panel 1). The decline in mortality among males accounted for almost 75% (3721/4936) of the decline in

Table 1. All-cause mortality rates (per 100,000) in Wisconsin for 1979-1980 and 1994-1995 (Death rates for age groups spanning more than 10 years are age-adjusted to the 1995 standard US population)

Both Genders	Average Mortality Rate		% change 1980-1995	Observed deaths	Expected Deaths	Observed-expected
Age Group	1980	1995		1995	1995	
All Ages	914	819	-10%	44890	49826	-4936
< 1 year	1050	753	-28%	509	709	-200
1-14 years	34	25	-27%	252	346	-94
15-24 years	97	76	-22%	542	697	-155
25-44 years	134	125	-7%	2004	2162	-158
45-64 years	763	602	-21%	6116	7790	-1674
65-74 years	2749	2409	-12%	8686	9985	-1299
75+ years	8671	8202	-5%	26780	28135	-1355

Males	Average Mortality Rate		% change 1980-1995	Observed deaths	Expected Deaths	Observed-expected
Age Group	1980	1995		1995	1995	
All Ages	1193	1034	-13%	22404	26125	-3721
< 1 year	1167	833	-29%	288	403	-115
1-14 years	39	29	-28%	151	207	-56
15-24 years	145	108	-25%	394	526	-132
25-44 years	176	167	-5%	1346	1416	-71
45-64 years	1007	756	-25%	3767	5016	-1248
65-74 years	3772	3131	-17%	5156	6209	-1053
75+ years	11079	10214	-8%	11302	12347	-1045

Females	Average Mortality Rate		% change 1980-1995	Observed deaths	Expected Deaths	Observed-expected
Age Group	1980	1995		1995	1995	
All Ages	710	663	-7%	22486	23701	-1215
< 1 year	927	669	-28%	221	306	-85
1-14 years	28	21	-27%	101	139	-38
15-24 years	49	42	-13%	148	171	-22
25-44 years	93	82	-12%	658	746	-88
45-64 years	536	454	-15%	2349	2774	-425
65-74 years	1927	1802	-7%	3530	3776	-246
75+ years	7291	7902	-3%	15478	15788	-310

the number of deaths overall. The rate of decline among males outpaced that of females in every age group except among those 25 to 44 years of age.

Infants

The infant mortality rate decreased by 28% from 1980 to 1995, with 200 fewer deaths than expected in 1995. This decrease was the result of fewer deaths than expected from perinatal conditions (n = 112), congenital anomalies, (n = 48), and sudden infant death (n = 20).

The rates of decline overall and for the leading causes of death were similar among males and females. Among males, the mortality rate decreased by 29%, with 115 fewer deaths than expected, compared to a 28% decline among females, and 85 fewer deaths than expected.

Children, ages 1 to 14

The mortality rate for 1 to 14 year olds decreased by 27% from 1980 to 1995, with 94 fewer deaths than expected in 1995. This decrease was the result of fewer deaths than expected from congenital anomalies (n = 46), motor vehicle accidents (n = 42), and accidental drownings (n = 38).

The rates of decline overall and for the leading causes of death were similar among both genders. Among boys, the mortality rate decreased by 28%, with 56 fewer deaths than expected, compared to a 27% decline among girls, and 38 fewer deaths than expected.

Adolescents and young adults, ages 15 to 24

The mortality rate for 15 to 24 year olds decreased by 22% from 1980 to 1995, with 154 fewer deaths than expected in 1995. This decrease was largely the result of fewer deaths than expected from motor vehicle accidents (n = 117).

The rate of decline in mortality was greater among males than females. Among males, the mortality rate decreased by 25%, with 132 fewer deaths than expected, compared to only a 13% decline among females, and only 22 fewer deaths than expected. The greater decline among males was primarily due to greater declines in motor vehicle accident deaths.

Adults, ages 25 to 44
The mortality rate for 25 to 44 year olds decreased by 7% from 1980 to 1995, with 159 fewer deaths than expected in 1995. This decrease was largely due to fewer deaths from unintentional injuries (n = 122), heart disease and stroke (n = 110) and malignant neoplasms (n = 50). These gains were offset by increases in mortality due to HIV infections (n = 143) and homicides (n = 18).

The rate of decline in mortality was less among men than women. Among men, the mortality rate decreased by only 5%, with 71 fewer deaths than expected, compared to a 12% decline among women, and 88 fewer deaths than expected. Although the decrease in unintentional injuries was greater for men, the slower decline among men overall was a result of a greater increase in HIV deaths.

Adults, ages 45 to 64
The mortality rate for 45 to 64 year olds decreased by 21% from 1980 to 1995, with 1673 fewer deaths than expected in 1995. This decrease was largely the result of fewer deaths than expected from heart disease (n = 1078) and neoplasms (n = 325).

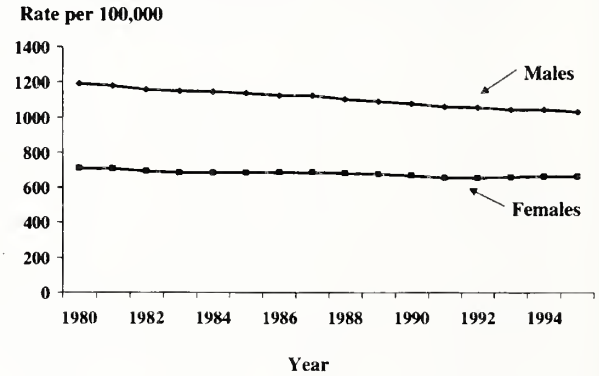
The rate of decline in mortality was greater among men than women. Among men, the mortality rate decreased by 25%, with 1248 fewer deaths than expected, compared to only a 15% decline among women, with 425 fewer deaths than expected. The greater decline among men was due primarily to a decline in lung cancer among men, in contrast to an increase in lung cancer deaths among women.

Adults, ages 65 to 74
The mortality rate for 65 to 74 year olds decreased by 12%, with 1299 fewer deaths than expected in 1995. This decrease was largely the result of fewer deaths than expected from heart disease (n = 1536) and stroke (n = 236). The mortality rate from cancer increased, with 249 more deaths in 1995 than expected.

The rate of decline in mortality was greater among men than women. Among men, the mortality rate decreased by 17%, with 1,053 fewer deaths than expected, compared to only a 7% decline among women, and 246 fewer deaths than expected. The greater decline among men was due primarily to greater declines in cardiovascular disease among men, and greater increases in lung cancer among women.

Adults, ages 75 and older
The mortality rate for persons 75 years of age and older decreased by 5% from 1980 to 1995, with 1355 fewer deaths than expected in 1995. This decrease was largely the result of fewer deaths than expected from heart disease (n = 3747) and stroke (n = 688). The mortality rate from cancer increased, with 618 more deaths in 1995 than expected.

Figure 1. Trends in all-cause mortality for males and females in Wisconsin from 1980-1995 (Age-adjusted to the 1995 standard US population and plotted as 3-year moving averages)



The rate of decline in mortality was greater among men than women. Among men, the mortality rate decreased by 8%, with 1045 fewer deaths than expected, compared to only a 3% decline among women, and 310 fewer deaths than expected. As with those ages 65 to 74, this was due primarily to greater declines in cardiovascular disease among men, and greater increases in cancer among women.

DISCUSSION

Over the past 15 years, mortality rates have declined for males and females and in every age group in Wisconsin, leading to almost 5000 fewer deaths than expected in 1995. Although mortality rates continue to be higher among males in every age group, the rates declined twice as fast among males (13%) compared with females (7%). This disparity in the rate of progress results from different trends in mortality rates among persons age 15 and older and for several causes of death.

First, fewer men died in motor vehicle accidents, especially those 15 to 24 years of age. The reason for the greater decline in this age group may reflect a reduction in high-risk behavior, which is more common in males.[2-4] For example, this may be due to the effects of injury prevention campaigns encouraging behaviors such as designating sober drivers.

Second, increases in HIV deaths were greater in men during the past 15 years, especially among those age 25 to 44. As a result, mortality rates among women in this age group declined faster than among men. Men in this age group had 8 times more HIV deaths than women, offsetting the gains made by reductions in other causes of mortality in decreasing the overall mortality rate for men.

Third, differences in trends in cardiovascular disease accounts for much of the differences in mortality trends, especially among those over age 65. It may be that men

Figure 2. Percent decreases in all-cause mortality (per 100,000) rates for males and females in Wisconsin from 1980-1995 (Plotted as 3-year moving averages. Mortality rates for age groups spanning more than 10 years are age-adjusted to the 1995 standard US population)

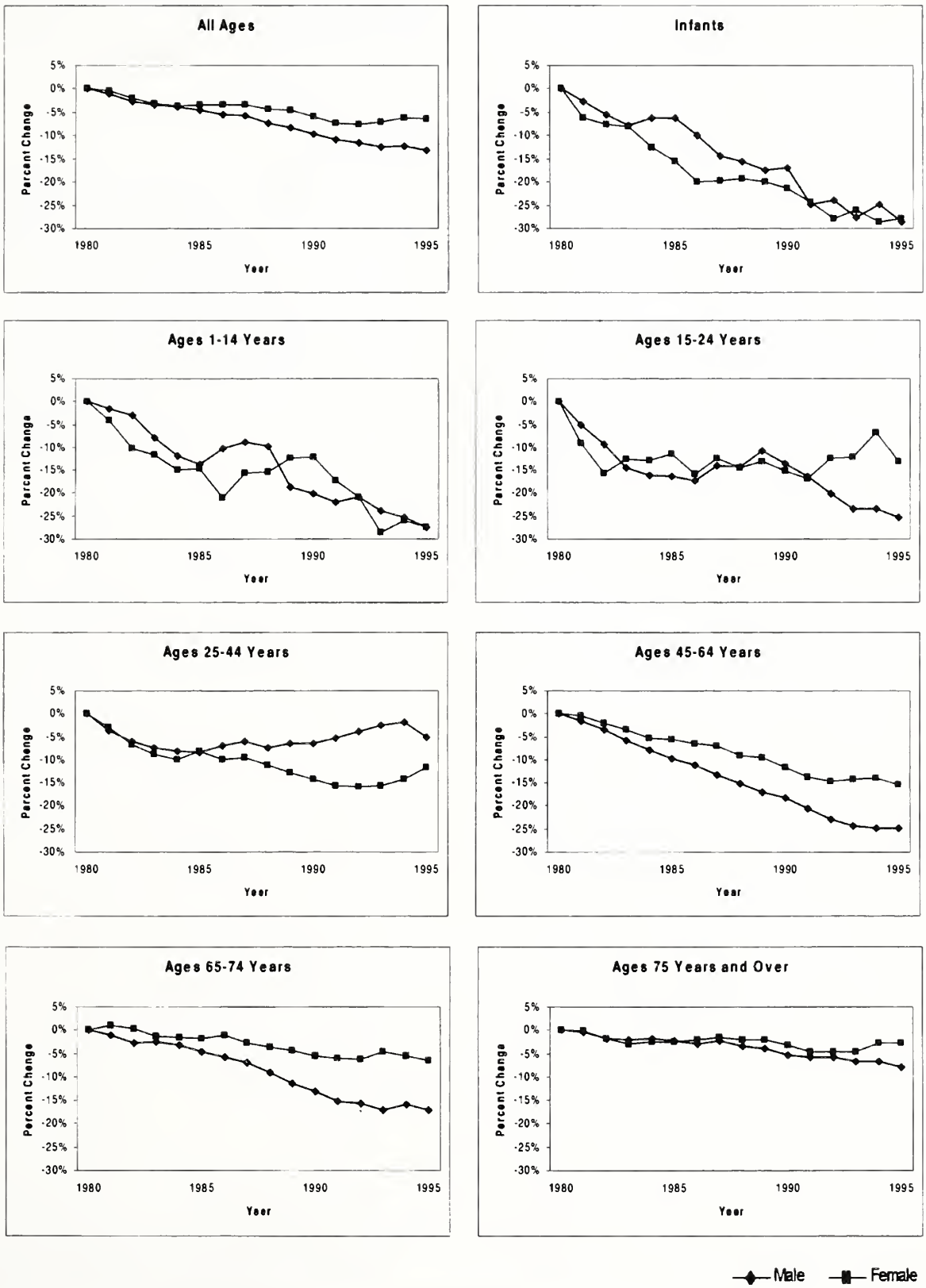
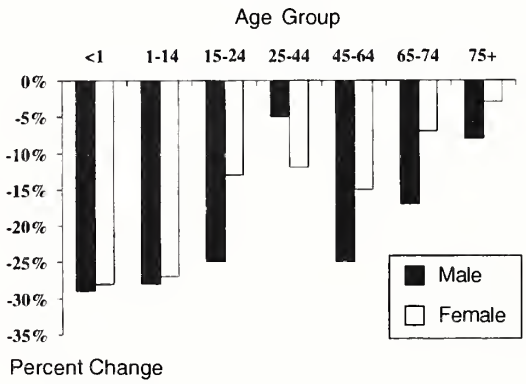


Figure 3. Percent change in all-cause mortality for males and females in Wisconsin from 1980 to 1995.



have had more favorable changes in risk factors for cardiovascular disease, such as smoking, diet, and control of hypertension. In addition, males may be more likely to have adopted preventive practices, such as the use of aspirin to prevent heart attacks. Finally, it may be that men have benefited more than women from advances in the early detection and treatment of heart disease.

Finally, differences in trends in cancer death rates observed for men and women may be due to a combination of factors. First, rates of smoking have declined at a much greater rate among men, leading to a decline in age-adjusted lung cancer rates. In contrast, rates of smoking among women have not declined substantially in the past 30 years, and lung cancer death rates continue to increase. In addition, with fewer dying from cardiovascular disease, death rates from cancer may increase among older adults.

In conclusion, the disparity in progress in mortality trends for men and women result primarily from differences in mortality trends from motor vehicle accidents and HIV among young adults and cardiovascular disease and cancer among older adults. The reasons for these differences are varied and relate to social and biological factors.[5] Public health needs to carefully monitor trends in mortality and other health outcomes, to assure that the benefits of population-based interventions are equitable for both males and females of all ages.

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Emphysematous Cystitis: A Case Report

Jennifer Bartczak, MD, and David Schiedermayer, MD

Emphysematous cystitis is an uncommon complication of urinary tract infections in which bacterial fermentation produces gas in the wall and lumen of the bladder.[1] It generally affects women with diabetes, glucosuria, chronic urinary infections and stasis, or neurogenic bladder.[1-4] The case report below describes a patient that lacked urological symptoms but had unusually vivid radiographic findings, demonstrating the importance of vigorous efforts at diagnosis and treatment.

CASE REPORT

An 80-year-old Hispanic woman was brought to the emergency room by her family. She was unable to answer questions in either English or Spanish. Her family noted that the patient complained of 5 days of progressively worsening abdominal and back pain, as well as subjective fevers, chills and decreased appetite. The family denied that she had any urological symptoms such as frequency, dysuria, urgency or hematuria. Past medical history was significant for hypertension, diabetes and depression. Her medications included metformin, clonazepam, proproxyphene, sertraline and acetaminophen. She lives with her husband, and her children visit them several times each week. The family indicated that she didn't use any alcohol or tobacco. Her vital signs were: temperature 98.1 F, heart rate 120 beats per minute, blood pressure 122/74 mmHg, and respirations 18 per minute. On physical examination the patient was difficult to arouse, and was only oriented to self. Abdominal exam showed diffuse tenderness, distention and hypoactive bowel sounds. No guarding, rebound tenderness, hepatosplenomegaly or masses were present. Lungs were clear to ausculation and heart was within normal limits. She was moving all four extremities equally. Laboratory was significant for a white blood cell count of 28,500 per cubic mm with 96% neutrophils and 2% bands, hemoglobin 11 grams/dL, sodium 128 mmol/ L, bicarbonate 15 mmol/L, glucose 469 mmol/dL, and creatinine 1.2mg/dL.

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Urinalysis had >100 white cells, 10 to 25 red blood cells, 3+ glucose, 3+ blood, 2+ bacteria, 2+ leukocyte esterase. Abdominal x-ray revealed air within the bladder and the bladder wall consistent with emphysematous cystitis (see Figure 1). A subsequent CT scan of the pelvis showed intramural gas within the bladder, without evidence of vesicocolic or vesicovaginal fistula. The patient was admitted to the intensive care unit where she received fluid resuscitation and intravenous antibiotics: Fluconazole, Ciprofloxin and Ampicillin/sulbactam. Her confusion, abdominal distention, hyperglycemia and leukocytosis resolved within 1 week. She was treated conservatively with 2 weeks intravenous antibiotics and discharged home with another week of oral therapy.

DISCUSSION

Originally, intraluminal and intramural gas formation were distinguished separately, until Bailey suggested they were a continuum of the same entity. The first reported case of either description dates back to 1671, in Curiosities of Nature.[1,5] Since then, the ability to identify such cases has increased due to advances in radiology techniques.[1,3]

Causes of emphysematous cystitis include instrumentation, trauma, enterovesical fistula due to diverticulitis, carcinoma or Crohn's disease.[1-7] Infections may also cause gas formation. The suspected mechanism that results in gas formation is the fermentation of glucose to carbon dioxide by capable bladder organisms. The gas is then deposited in the layers of the bladder.[6,8] Glycosuria is not a prerequisite for gas development, but infection is always present.[1] In the nondiabetic patient, gas may be formed by the breakdown of abnormal albumin or E. coli acting on normal albumin.[9] Most cases, including this one, are linked to E. coli. Other cases of emphysematous cystitis have been infected with Enterobacter aerogenes, Proteus mirabilis, Staphylococcus aureus, Streptococcus, Nocardia, Clostridium perfringes and Candida albicans.[2]

The clinical presentation can vary from asymptomatic, to symptoms of cystitis, to severe abdominal pain. Patients rarely report pneumaturia.[4] Urinalysis may reveal pyuria, bacteria, hematuria, glycosuria or ketonuria.[3]

Figure 1.

Diagnosis of emphysematous cystitis is generally made with abdominal radiography. There is usually a thin, radiolucent line circumfusing the bladder wall.[7] The size of the gas bubbles may vary, creating a cobblestone appearance.[10] Emphysematous cystitis may be seen on cystoscopy with the bladder mucosa covered in tiny gas bubbles.[11] Both radiographic and cystscopic findings tend to disappear in a few days, therefore diagnosis is dependent on the stage of the disease.[9] Resolution is easily accomplished with parenteral antibiotics, control of blood glucose, hydration and bladder rest with a foley catheter.[12] Surgical intervention is indicated only for severe anatomic abnormalities.[13]

CONCLUSION

Emphysematous cystitis is relatively easy to treat with aggressive management, but diagnosis can be complicated by a lack of urologic symptoms and by the stage of the disease at the time of presentation. Although emphysematous cystitis is rare, knowledge of how it presents relative to other complicated urinary tract infections can facilitate diagnosis and treatment.

ACKNOWLEDGMENT

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Hyperhomocysteinemia: An Additional Cardiovascular Risk Factor

Philip C. Fanapour, BS, Barbara Yug, RN, MS, and Mahendr S. Kochar, MD, MS

ABSTRACT

Over the past few years, a substantial body of evidence has accumulated that indicates hyperhomocysteinemia as a significant risk factor for cardiovascular disease. Hyperhomocysteinemia arises from a lack of key enzymes or vitamins such as methylenetetrahydrofolate reductase, vitamin B_6, and folate which are involved in homocysteine metabolism. Heavy coffee consumption is also known to elevate homocysteine levels.

The adverse effects associated with hyperhomocysteinemia are extensive. It increases risk of myocardial infarction, cardiovascular-related morbidity and mortality, peripheral vascular disease, atherosclerosis, coronary heart disease, and cerebrovascular disease. Its seriousness as a risk factor has been equated to hypercholesterolemia and smoking, two leading causes for cardiovascular disease. It also has been shown to produce a multiplicative effect with these and other risk factors such as hypertension.

Two major hypotheses have been proposed to explain how homocysteine induces its harmful effects. It can damage endothelial cells lining the vasculature, allowing plaque formation. Simultaneously, it interferes with the vasodilatory effect of endothelial derived nitric oxide. Also, homocysteine has been found to promote vascular smooth muscle cells hypertrophy. Both of these processes induce vessel occlusion.

Maintaining a normal plasma level of homocysteine as a means to prevent cardiovascular disease appears promising. This is achieved through increased intake of folate and vitamin B_6 through diet or supplementation. Despite the overwhelming evidence suggesting homocysteine as a significant risk factor, no long-term prospective studies have been completed to demonstrate that folate and vitamin B_6 can prevent cardiovascular disease related morbidity and mortality in patients with hyperhomocysteinemia.

Homocysteine is a key metabolite in amino acid synthesis. During the process of methylation, S-adenosylmethionine (Ado Met), derived from methionine, is converted to S-Adenosylhomocysteine (Figure 1). This product is quickly hydrolyzed to form homocysteine and adenosine. Homocysteine can undergo 1 of 3 reactions depending on the status of the organism. If cysteine levels are inadequate, homocysteine utilizes the coenzyme pyridoxal phosphate (vitamin B_6) to condense with serine, forming the intermediate cystathionine. Subsequent reactions with cystathionine lead to the formation of cysteine. When methionine levels are low, homocysteine is remethylated in a reaction involving the coenzyme N^5-methyltetrahydrofolate or betaine. Finally, when both amino acids are in adequate supply, homocysteine is cleaved by the enzyme homocysteine desulthydrase (cystathionase) to form a-ketobutyrate, ammonia, and H_2S. Thus, homocysteine's physiological role is to assist in maintaining sulfur-amino acid homeostasis. Beyond these metabolic processes, homocysteine is beginning to be recognized as a significant risk factor for cardiovascular disease including atherosclerosis, coronary artery disease, cerebrovascular disease, and myocardial infarction.

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HYPERHOMOCYSTEINEMIA AND CARDIOVASCULAR DISEASES

Experimental data was recently published supporting the finding that homocysteine plasma concentration is an indicator of mortality in patients with coronary artery disease. In this study, a prospective trial was performed on 587 patients angiographically diagnosed with coronary artery disease who were concurrently evaluated for homocysteine blood levels. After follow-up for an average of 4.6 years, a strong correlation between homocysteine plasma level and overall mortality was observed; 24.7% patients with homocysteine level $\geq$15 µmol/L were deceased compared to 3.8% patients with <9 µmol/L. After further comparison among varying homocysteine concentrations in these patients, an obvious graded relationship was detected between it and overall mortality.[1] Additional evidence indicating homocysteine blood level as an independent risk factor for cardiovascular morbidity and mortality comes from a study on patients with end stage renal disease. It was found that the relative risk for cardiovascular related morbidity and mortality in-

creased by 1% for every µmol/L increase in homocysteine blood levels in these patients.[2] Thus, in certain patient groups, homocysteine blood level is a strong indicator of cardiovascular disease related morbidity and/or mortality.

EFFECTS OF HYPERHOMOCYSTEINEMIA ON ATHEROSCLEROSIS

Several studies have been completed on the significance of homocysteine blood level in atherosclerosis. In one trial, 482 patients diagnosed with hyperlipidemia were evaluated for homocysteine blood concentration and the presence of atherosclerotic vascular disease. Of these patients, 18 possessed high homocysteine blood level of ≥16.2 µmol/L; 72% of this subgroup had atherosclerotic vascular disease compared to 44% of patients with a median homocysteine level of 9 µmol/L. Further evaluation by logistic regression demonstrated homocysteine as a positive predictor for the presence of atherosclerotic vascular disease in hyperlipidemic patients.[3]

In another study, homocysteine blood level was correlated with extracranial carotid artery stenosis in 1041 elderly (ages 67-96) patients. Significant stenosis (≥25% vessel lumen) occurred more frequently (odds ratio of 2.0) in patients with a high homocysteine blood level of ≥14.4 µmol/L compared to those with low levels (≤9.1 µmo1/L).[4]

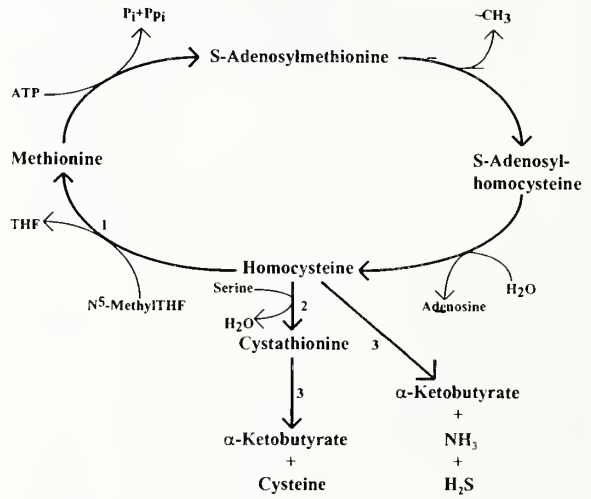
Similar results in patients 55 to 74 years old were observed in the Rotterdam study which also reported findings of increased risk for peripheral arteriosclerosis and cardiovascular disease.[5] Further evidence for a relationship between blood homocysteine blood level and atherosclerosis comes from the European Concerted Action Project, a study involving 19 clinics in 9 countries. Homocysteine blood levels in 750 patients diagnosed with atherosclerosis were compared to 800 subjects with no signs of vascular disease. Subjects with a homocysteine blood level that fell within the top 20 percentile were twice as likely to have atherosclerosis.[6]

Several other clinical and epidemiological studies demonstrate a high prevalence of hyperhomocysteinemia in the general population, indicating significant risk for widespread occurrence of atherosclerosis in coronary, cerebral, and peripheral vasculature.[7] Hyperhomocysteinemia is also considered a prominent risk factor for arterial-venous thromboembolism. It is thought that hyperhomocysteinemia induces platelet aggregation, causing thromboembolitic events, but this mechanism is still uncertain.[7]

POSSIBLE MECHANISMS FOR HOMOCYSTEINE-RELATED PATHOLOGY

The exact mechanism by which homocysteine promotes atherosclerosis is somewhat inconclusive. One theory suggests that homocysteine induces formation of atherosclerotic plaques on the vascular wall by damaging the endothelium.[8] Also, *in vitro* experiments have demonstrated homocysteine's ability to interact with nitric oxide, interfering with its vasodilatory effect.[9] Another study on the acute effect of high homocysteine plasma concentrations on endothelial cells was performed in 13 healthy individuals free of medications, and with normal blood pressure, cholesterol, glucose, folate, and vitamin B_{12} concentrations. By acutely increasing homocysteine levels in these subjects, an impairment of nitroglycerin induced vasodilation via nitric oxide was observed.[10] Other studies have shown that hyperhomocysteinemia promotes a hypertrophic effect on vascular smooth muscle cells, leading to vessel stenosis.[11]

Figure 1. Homocysteine Metabolism



Key:
THF= Tetrahydrofolate
1= Homocysteine Methyltransferase + Methylcobalamin (vit B_{12})
2= Cystathionine Synthase + Pyridoxal Phosphate (vit B_6)
3= Cystathionase + Pyridoxal Phosphate (vit B_6)

EFFECTS OF HYPERHOMOCYSTEINEMIA ON CORONARY HEART DISEASE

An association has been demonstrated between homocysteine blood level and incidence of myocardial infarction and coronary heart disease. In a case control study, fasting blood levels of homocysteine, folate, and vitamins B_6 and B_{12} were evaluated in 130 patients hospitalized for first time myocardial infarction, and compared to 118 controls. Patients had a mean homocysteine blood concentration 11% higher than controls. Also, dietary and plasma levels of vitamin B_6 and folate were lower in patients than controls; these vitamins were inversely related to risk of myocardial infarction. Folate and vitamin B_6 blood levels are thought to be significant because of their involvement in homocysteine metabolism.[12] A prospective cohort study provides additional evidence for the importance

of these cofactors. A total of 80,082 women were evaluated for daily intake of vitamin B_6 and folate. After 14 years of follow-up, it was found that folate and vitamin B_6 intake was inversely related to incidence of coronary heart disease.[13]

GENETIC FACTORS

Evidence for elevated plasma level of homocysteine as a risk factor for coronary heart disease is based on a study involving a heat labile variant of the enzyme methylenetetrahydrofolate reductase (MTHFR). MTHFR is involved in the metabolism of homocysteine by recycling tetrahydrofolate (THF) into an active methyl donor (N^5-methylTHF) to homocysteine (Figure 1). Thus, an unstable variant causes increases in homocysteine blood level. One study showed that homozygotes for the MTHFR heat labile variant were at increased risk for coronary heart disease and that supplementation with folate decreased this risk. Folate supplementation increases activity of the mutant, making more N5-methylTHF available for homocysteine metabolism. Thus, both MTHFR and folate lower homocysteine levels which reduce the likelihood of coronary heart disease.[14] Similar results involving the MTHFR mutant were obtained in another study. The authors found a prevalence of homozygosity for this allele 3 times greater in patients with coronary heart disease than in controls.[15] Thus, elevated homocysteine blood level, either by a deficiency in the MTHFR enzyme or a relevant vitamin, is a crucial risk factor for cardiovascular disease.

EVALUATION OF HOMOCYSTEINE'S ADVERSE EFFECTS

Hyperhomocysteinemia has widespread effects on the circulatory system. It increases risk for coronary heart disease, peripheral vascular disease, and cerebrovascular disease; however, the extent to which homocysteine increases the risk for these different diseases has been elucidated only recently. A comparison between the relative risks of developing coronary artery disease, peripheral artery disease, and cerebrovascular disease was done in patients with elevated homocysteine blood level between the ages of 50 and 75. It showed that increasing levels of homocysteine equally increases the risk of developing all these diseases. The study further demonstrated that non-insulin dependent diabetes mellitus exacerbates the risk for cardiovascular disease with increasing homocysteine blood level compared to controls.[16]

COMPARISON BETWEEN HOMOCYSTEINE AND OTHER RISK FACTORS FOR CARDIOVASCULAR DISEASE

Homocysteine is just becoming widely recognized as a significant risk factor for cardiovascular disease. Only recently has it been compared to other leading risk factors for its severity of consequence. In the European Concerted Action Project, it was shown that the risk involved in having elevated homocysteine plasma level is equivalent to that of hypercholesterolemia and smoking.[6] Hypertension is still the leading risk factor for cardiovascular disease. Additionally, homocysteine interacts with these other risk factors to produce an additive or multiplicative effect.

CONTROLLING HYPERHOMOCYSTEINEMIA

Since there is an increasing body of evidence that indicates homocysteine as an independent risk factor for cardiovascular disease, steps have already been initiated to control elevated homocysteine blood level. The most effective means implemented so far has been increased dietary intake and/or supplementation of folate and vitamin B_6. These two vitamins bolster the activity of enzymes involved in homocysteine metabolism such as N^5,N^{10}-methylenetetrabydrofolate reductase (MTHFR), to reduce homocysteine blood concentration.

In one study, subjects between the ages of 30 and 49 with mild hyperhomocysteinemia were treated with 1 of 4 regimens. The first group was treated with B-group vitamins (1.0 mg folic acid, 7.2 mg pyridoxine, and 0.02 mg of cyanocobalamin/ day), the second with antioxidant vitamins (150 mg ascorbate, 67 mg tocopherol, and 9 mg beta-carotene/ day), the third with both B-vitamins and antioxidants, and the fourth with a placebo. Significant decreases in homocysteine level up to 32% were observed in groups treated with B-vitamins, or antioxidants and B-vitamins. No decrease was observed in the other groups. Furthermore, the effect of B-vitamins on the reduction of homocysteine blood level depended on MTHFR blood concentration. Subjects with a higher level of this enzyme experienced greater reductions when treated with B-vitamins.[17] Thus, B-vitamin supplementation reduces homocysteine blood level, potentially decreasing the risk for cardiovascular disease.

COFFEE AND HYPERHOMOCYSTEINEMIA

While food products rich in B-vitamins or supplementation decrease homocysteine blood level, coffee has the opposite effect. A study conducted in Norway compared coffee consumption to homocysteine blood level in 7589 men and 8585 women between the ages of 40 and 67, who were free of hypertension, diabetes, ischemic heart disease, and cerebrovascular disease. A significant direct relationship was found between heavy coffee consumption (up to 9 cups/day) and homocysteine blood level.[18] The underlying biological mechanism for such a relationship is unknown. Thus, homocysteine blood level can be controlled by restriction of heavy coffee consumption, and increased intake of foods rich in B-vitamins and/or supplementation.

SHOULD HYPERHOMOCYSTEINEMIA BE TREATED?

It is still somewhat uncertain if hyperhomocysteinemia is a risk factor or a marker for cardiovascular disease. No clinical evidence is as yet available indicating a reversal of pathology by lowering elevated plasma homocysteine level. Experiments on monkeys with hypercholesterolemia, hyperhomocysteinemia, and atherosclerosis did not show improvement in blood flow after lowering homocysteine level with vitamin supplementation.[19] However, the potential benefits of screening homocysteine blood level and providing vitamin supplementation when indicated to prevent cardiovascular disease far exceeds the costs for such measures.[20] This alone is reason enough for widespread education, testing, and vitamin supplementation as needed. It is highly probable that homocysteine is an independent risk factor for a variety of cardiovascular diseases, and should probably be placed high up on the priority list along with high blood pressure, hypercholesterolemia, smoking, alcohol, and diabetes.

Control of hyperhomocysteinemia is safe, simple and inexpensive. The American Heart Association recommends a daily intake of 400 µg or more of folic acid to reduce high-normal homocysteine blood levels. However, this is twice the US Food and Drug Administration daily requirement. Fortification of certain staple food products with folate has partially circumvented the problem of a folate deficient diet, although, inadequate folate intake is still a widespread phenomenon.[21] Vitamin B_6, another coenzyme involved in homocysteine metabolism, also reduces its blood level, but to a lesser extent than folate, in normal individuals.[13] Its recommended dosage is 3 mg/day to derive maximum reduction of homocysteine plasma level. With routine measurements of homocysteine and treatment of hyperhomocysteinemia, more lives may be saved from the devastating effects of cardiovascular disease. Since both folic acid and vitamin B_6 are available as generic drugs, no pharmaceutical company has an interest in conducting research on the effects of treatment of hyperhomocysteinemia in reducing cardiovascular morbidity and mortality. This may be partly the reason why, despite the overwhelming evidence that homocysteine is a significant risk factor, no large scale multicenter cooperative studies have been undertaken to demonstrate the benefits of its reduction. Publicly-funded, long-term studies are now in progress to determine the efficacy of folic acid in prevention of CV diseases.

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Wisconsin Law Banning 'Partial-Birth' Abortion in Flux

By Melanie E. Cohen, JD, SMS Assistant General Counsel

On October 26, 1999, in *Christiansen et al v. Doyle*, the United States Court of Appeals for the Seventh Circuit upheld Wisconsin's partial-birth abortion law against a constitutional challenge. While this decision is significant for both health care providers and patients, it may not be the last word on this matter. The plaintiffs have announced their intention to appeal the decision to the United States Supreme Court. If the Supreme Court accepts the case for review, its decision will supercede that of the Seventh Circuit and likely determine the outer boundaries of a woman's right to obtain an abortion in the United States.

Wisconsin's ban on "partial-birth abortion" was enacted in 1998. Under that law, "partial-birth abortion" is defined as "an abortion in which a person partially vaginally delivers a living child, causes the death of the partially delivered child with the intent to kill the child, and then completes the delivery of the child." Wis. Stat. sec. 940.16(1)(b) (1997-98). Child is defined as "a human being from the time of fertilization until it is completely delivered from a pregnant woman." Sec. 940.16(1)(a). Except when partial-birth abortion is "necessary to save the life of a woman whose life is endangered by a physical disorder, physical illness or physical injury, including a life-endangering physical disorder, physical illness or physical injury caused by or arising out of the pregnancy itself, and if no other medical procedure would suffice for that purpose," a person who "intentionally performs a partial-birth abortion is guilty of a Class A felony." Sec. 940.16(2), (3). The penalty for a Class A felony is life imprisonment. Wis. Stat. sec. 939.50(3)(a).

In their challenge to the law, the plaintiffs argue that it is unconstitutional for two reasons: First, the plaintiffs claim that the law is vague. In so arguing, the plaintiffs assert that the law is written so broadly and imposes such severe penalties that physicians may be deterred from performing constitutionally permissible abortions for fear that they will violate the statute. Second, they argue, the law unduly burdens a woman's right to have an abortion.

The Seventh Circuit rejected both arguments and held that the law could be applied in a constitutional manner. In reaching this determination, the court distinguished between several methods of performing abortion including dilation and evacuation (D&E) which, the court stated, is a common method of performing abortion in the United States, and dilation and extraction (D&X), the method known as partial-birth abortion which, according to the court, is uncommon. The court found that Wisconsin's partial-birth abortion law was intended to prohibit only the D&X method and not other methods of performing abortion. It further found that Wisconsin's Attorney General contended that it would apply the law only to abortions that, at the outset, were intended to employ the D&X method. Because Wisconsin courts could interpret the law as prohibiting only the D&X method and not other methods of abortion, the court held that the law is not unconstitutionally vague. Moreover, since the law prohibits only one type of abortion and not abortion altogether, the court held that the law does not unduly burden a woman's right to have an abortion.

While the court held that the law was not vague, it did recognize that there is some risk that it could be applied more broadly than the D&X method. Accordingly, the court ordered that the trial court, the United States District Court for the Western District of Wisconsin, enter an order limiting application of the law to the D & X procedure.

While the Seventh Circuit upheld the ban on partial-birth abortion, other courts have struck down such bans. The United States Court of Appeals for the Eighth Circuit recently struck down three state laws banning partial-birth abortion. Moreover, several state courts have enjoined bans on partial-birth abortion.

The State Medical Society of Wisconsin has taken a position on partial-birth abortion. SMS policy ABO-998, states that the SMS "recognizes that the procedure intact-dilation and extraction,

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MetaStar Set to Undertake New Quality Initiatives

By Jay A. Gold, MD, JD, MPH, and Dennis Spurlin

MetaStar is set to undertake new quality initiatives in February when the company begins work on the Health Care Financing Administration's (HCFA) 6th Scope of Work contract. MetaStar has been the Peer Review Organization (PRO) for Wisconsin since HCFA began the PRO program.

The new contract addresses national and local health care quality improvement priorities, the Payment Error Prevention Program (PEPP), Medicare+ Choice and Medicare beneficiary protection. MetaStar's major focus will remain on working with its partners to optimize the quality of health care for Wisconsin Medicare beneficiaries.

National quality priorities

MetaStar projects will be conducted in both inpatient and outpatient settings over the next three years, and will involve the measurement of certain nationally-identified quality priorities. The projects are designed to raise statewide rates on important quality indicators. The national topics and quality indicators include:

Acute myocardial infarction

- Early administration of aspirin
- Aspirin at discharge
- Early administration of beta blockers
- Beta blockers at discharge
- ACE inhibitors for low LVEF
- Timely reperfusion
- Smoking cessation counseling provided

Heart failure

- Assessment of LVEF and treatment with angiotensin- related drugs when appropriate

Stroke/TIA/AFib

- Aspirin or antiplatelets at discharge for ischemic stroke/ TIA
- Warfarin for AFib
- Avoidance of rapid-acting anti-hypertensives in acute stroke

Pneumonia treatment

- Timely initial antibiotic administration
- Appropriate initial antibiotic(s)
- Blood culture (if done) before antibiotic(s)

Pneumonia prevention

- State influenza vaccination rate
- State pneumococcal vaccination rate
- Inpatient pneumococcal and influenza vaccination or screening

Diabetes

- Appropriate frequency of retinal exam by an eye professional
- Appropriate $HgbA_{1C}$ testing
- Appropriate frequency of lipid profile

Breast Cancer

- Appropriate frequency of mammography

MetaStar will engage in projects in these areas with the goal of statewide improvement on all indicators associated with the six clinical indicators. MetaStar will also conduct projects in non-acute care settings based on local interests, needs and opportunities. In addition, there will be projects focusing on reducing the disparity in care received between members of disadvantaged groups and other Medicare beneficiaries.

MetaStar will offer Medicare+ Choice plans in Wisconsin assistance in the quality improvement projects required by the Quality Improvement System for Managed Care (QISMC). Collaboration on these projects will assist plans in meeting HCFA-directed national project requirements.

Payment Error Prevention Program (PEPP)

A new task under the 6th Scope is the Payment Error Prevention Program (PEPP), under which HCFA has directed the PROs to increase their focus on making sure Medicare inpatient claims are billed and paid appropriately. MetaStar will work with providers to identify sources of payment errors and to promote system changes that prevent future errors. The approach to PEPP will be essentially educational, and MetaStar will work in collaboration with providers similar to the way it has conducted past quality improvement projects. PEPP objectives include measuring and tracking inpatient payment error rates; identifying causes for errors;

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and collaborating to reduce future payment errors. Neither revenue recovery nor punishment are program objectives.

Beneficiary protection

Under the 6th Scope contract, beneficiary protection will continue to include mandatory case review activities on a limited basis and beneficiary education. As part of the contract, MetaStar will continue educating Medicare beneficiaries regarding the Medicare program and their beneficiary rights.

Contract introduction

A formal introduction of the 6th Scope contract for providers and quality improvement staff will take place beginning in mid-February. The one-day meetings will include presentations on the inpatient projects, outpatient projects and the PEPP program. The meetings are tentatively scheduled for Madison, Milwaukee, La Crosse, Eau Claire, Wausau and Green Bay, beginning February 18.

Further information regarding the contract introduction meetings will be distributed to providers in early January.

If you would like to know more about our Health Care Quality Improvement Program, please contact Carol Ferguson, Vice President for Medicare Improvement Projects, or Dr. Jay Gold, Senior Vice President and Principal Clinical Coordinator, at (800) 362-2320 or (608) 274-1940.

Partial-Birth Abortion Law in Flux

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known to the public as partial birth abortion, should not be used when the physician has determined that there is a viable fetus (now about 24 weeks gestation or later) except in instances where the mother's life is in imminent danger or the fetus has an abnormality incompatible with life..."

The American Medical Association (AMA) has taken a different position. The AMA "recommends that the procedure [intact dilatation and extraction] not be used unless alternative procedures pose materially greater risk to the woman. The physician, however, must retain the discretion to make that judgment, acting within standards of good medical practice and in the best interest of the patient." AMA Policy H-5.982(2).

As of this writing, the Supreme Court has temporarily suspended or stayed application of the Seventh Circuit's decision. Thus, at this point in time, Wisconsin's partial birth abortion law will not be applied as allowed in the court's decision. While the law is not presently in effect, the State Medical Society encourages physicians to keep abreast of legal developments in the event that the stay is lifted and the law goes into effect. The State Medical Society will continue to monitor this important case.

More Than a Medical School

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have devoted more attention to the informal curriculum that encourages professional development. Coupled to academic program developments, the UW Medical School is evaluating its admissions policies and procedures and is developing better methods for selection of students that combines careful assessment of both intellectual and personal qualities. We are eager to strengthen recruiting of students to ensure selection of the "best and brightest."

In closing, I want to wish everyone happy holidays and extend our deepest gratitude for all the support we've received from the State Medical Society, its many members we count as friends, and our incredibly supportive alumni. Our stewardship responsibility for what might be considered one of Wisconsin's treasures inspires us to strive for enhanced excellence in care, teaching, and research during the 21st century.

Happy New Year!

"Happiness is essentially a state of going sowewhere wholeheartedly."

– W.H. Sheldon

Philip M. Farrell, MD, PhD

Dean's Corner

Creating Much More Than a Medical School

by Philip M. Farrell, MD, PhD, Dean, University of Wisconsin Medical School

After UW President Charles Van Hise recruited Johns Hopkins University's first MD graduate, Charles Bardeen, in 1904, these two leaders together decided that "much more than a medical school" was needed for Wisconsin. They dedicated themselves to the ambitious notion of fulfilling The Wisconsin Idea by serving people throughout the state while advancing knowledge through instruction and research. Creating a new medical school in Wisconsin, however, took more than ideas, and the UW Medical School during its early years was privileged to have consistent support from the State Medical Society. Van Hise and Bardeen's vision was finally complete in 1925/1926, with the opening of Wisconsin General Hospital. This first academic year was noteworthy not only because of our first teaching hospital but also for another profound development that proved vital throughout this century—creating a statewide preceptorship program for fourth-year medical students. This combination of a central teaching hospital on the Madison campus and a statewide network of learning sites for medical students has been the dual strategy leading to "much more than a medical school."

As we cross over to another century, it is clear to me that Van Hise and Bardeen would be pleased with the statewide, distributed medical school that has continually strengthened its academic and collaborative clinical programs. There are now more than 100 learning sites throughout Wisconsin for medical students who learn the real world of medical practice from outstanding health care professionals in rural, suburban, and urban settings. We greatly appreciate the mutually beneficial relationships that have developed with so many hospitals and physician groups. Some of these relationships, such as that with the Gundersen and Marshfield Clinics, are more than a half century old. More recent developments, such as establishing our Milwaukee Clinical Campus with Aurora Health Care and the Western Clinical Campus with Gundersen/Lutheran, have enabled us to advance our academic/clinical programs in association with organizational transformations. Throughout the century, UW Medical School graduates have commented that this special combination of learning in a centralized university program augmented by the efforts of community-based physicians proves to be the perfect preparation for residency training and a career of fulfilling practice.

Currently, in addition to 600 medical students, we are responsible for teaching about 500 residents in graduate medical education programs, nearly 400 Ph.D. candidates in the biological and physical sciences and in the humanities; approximately 4000 undergraduate students taking courses in subjects such as anatomy, physiology, and human biochemistry; and more than 10,000 practicing physicians taking advantage of our outstanding CME offerings. Our faculty teach students in the Schools of Nursing and Pharmacy, the medical technology, physical therapy, and physicians assistant programs, and also assume responsibility for many interdisciplinary courses provided to students associated with the College of Letters and Science.

During my tenure as Dean, one of the most gratifying developments has been the strengthening of research programs with greater depth, breadth, and extramural funding. During 1999, the UW Medical School has received $88 million of federal funding and $71 million from non-federal agencies. These outside sources have become increasingly important in recent decades as the proportion of state funding inexorably diminishes and now accounts for slightly more than 10% of the UW Medical School's budget.

Our core mission, teaching medical students, has benefited from the catalytic effect of successful competition for a number of national medical education demonstration grants. During a decade-long process of curriculum evaluation and reform, our faculty have made numerous improvements in how we teach our students. A new course entitled "Patient, Doctor, and Society" now serves as the cornerstone of our curriculum. In addition to the impact of the formal courses, we

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GENERAL INTERNAL MEDICINE - The VA Medical Center, Tomah, Wisconsin, is seeking three full-time general internists in ambulatory care and general inpatient medicine to include nursing home care. Board certification is required unless the physician is board eligible within four years of completing residency. These positions are to provide a combination of ambulatory clinic, in-patient hospital, and Medical Officer of the Day coverage. The majority of work will be at the medical center, although there are opportunities to work in community based outreach clinics including a clinic at a local military base. The Tomah VA is developing a system of community-based treatment for veterans in western and central Wisconsin, while maintaining its traditional inpatient and residential services for patients with acute and long-term care needs.

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